INVITATION TO BID		**BID DUE DATE AND TIME**
BOARD OF SUPERVISORS OF LOUISIANA STATE UNIVERSITY AND AGRICULTURAL & MECHANICAL COLLEGE	LSU	04/07/2006 11:00 AM CT

SOLICITATION 000000143

VENDOR #

VENDOR NAME AND ADDRESS

RETURN BID TO

LSU
LOUISIANA STATE UNIV.
PURCHASING OFFICE
213 THOMAS BOYD HALL
Baton Rouge LA 70803

BUYER Sandra G. Gillen
BUYER PHONE (225)578-2285

ISSUE DATE 03/10/2006

TITLE: MULTIFUNCTION OFFICE MACHINES - TERM CONTRACT

To Be Completed By Bidder

1. _____ "No Bid" (sign and return this page only).
2. _____ My Company does not wish to receive future solicitations for this commodity code.
3. Specify your Delivery: To be made within _____ days after receipt of order.
4. Specify your Payment Terms: _____.
   Prompt payment cash discounts for less than 30 days and less than 1% will be accepted, but will not be considered in determining awards. On indefinite quantity term contracts, cash discounts will be accepted and taken, but will not be considered in determining awards.
5. Specify your Bid Reference Number: _____.
   (This number will appear on any resulting order or contract.)

General Instructions to Bidders

1. Sealed bids for furnishing the items and/or services specified are hereby solicited, and will be received by the issuing LSU Campus/Department at the "Return Bid To" address stated above, until the specified due date and time.
2. Bids must be signed by a person authorized to bind the vendor. In accordance with Louisiana R.S. 39:1594, the person signing the bid must be: (1) a current corporate officer, partnership member, or other individual specifically authorized to submit a bid as evidenced in the appropriate records filed with the Louisiana Secretary of State; or (2) an individual authorized to bind the vendor as evidenced by a corporate resolution, certificate or affidavit; or (3) other documents indicating authority which are acceptable to the public entity.
3. Read the entire solicitation, including all terms, conditions and specifications.
4. All bid information and prices must be typed or written in ink. Any corrections, erasures or other forms of alteration to unit prices are to be initialed by the bidder.
5. Bid prices shall include all delivery charges paid by the vendor, F.O.B. LSU Destination, unless otherwise provided in the solicitation. Any invoiced delivery charges not quoted and itemized on the LSU purchase order are subject to rejection and non-payment.
6. Payment is to be made within 30 days after receipt of properly executed invoice, or delivery and acceptance, whichever is later. Delinquent payment penalties are governed by L.R.S. 39:1695.
7. By signing this solicitation, the bidder certifies compliance with all general instructions to bidders, terms, conditions and specifications; and further certifies that this bid is made without collusion or fraud.

BIDDER (Name of Firm)	MAILING ADDRESS
AUTHORIZED SIGNATURE	CITY, STATE ZIP
PRINTED NAME	PHONE #
TITLE	FAX #
E-MAIL	FEDERAL TAX ID #

SOLICITATION 000000143 DUE DATE 04/07/2006 DUE TIME 11:00 AM

These standard terms and conditions shall apply to all LSU solicitations, unless otherwise specifically amended and provided for in the special terms and conditions, specifications, or other solicitation documents. In the event of conflict between the General Instructions to Bidders or Standard Terms & Conditions and the Special Terms & Conditions, the Special Terms & Conditions shall govern.

Bids submitted are subject to provisions of the laws of the State of Louisiana, including but not limited to: the Louisiana Procurement Code (R.S. 39:1551-1736); Purchasing Rules and Regulations (Title 34 of the Louisiana Administrative Code); Executive Orders; and the terms, conditions, and specifications stated in this solicitation.

1. **Bid Delivery and Receipt**
   To be considered, sealed bids must be received and time-stamped at the "Return Bid To" address no later than the due date and time specified herein. Sealed bids cannot be accepted by telegraph, fax, or e-mail. Price alterations and addenda to bids may be submitted by telegraph or fax, and will be considered provided bidder's sealed bid, price alterations and addenda have been received in the purchasing office prior to bid opening time. Late bids cannot be accepted per L.A.C. 34.I.517, and shall be returned unopened.
2. **Bid Forms**
   Bids are to be submitted on and in accordance with the LSU solicitation forms provided, and must be signed by an authorized agent of the vendor. Bids submitted on other forms or in other price formats may be considered informal and may be rejected in part or in its entirety. Bids submitted in pencil and/or bids containing no original signature indicating the bidder's intent to be bound will not be accepted.
3. **Interpretation of Solicitation/Bidder Inquiries**
   If bidder is in doubt as to the meaning of any part or requirement of this solicitation, bidder may submit a written request for interpretation to the Buyer-of-Record at the address and/or fax number shown above. Written inquiries must be received in the Purchasing Office no later than five (5) calendar days prior to the opening of bids, and shall be clearly cross-referenced to the relevant solicitation/specification in question.
   No decisions or actions shall be executed by any bidder as a result of oral discussions with any LSU employee or consultant. Any interpretation of the documents will be made by formal addendum only, issued by the Purchasing Office, and mailed or delivered to all bidders known to have received the solicitation. LSU shall not be responsible for any other interpretations or assumptions made by bidder.
4. **Bid Opening**
   Bidders may attend the public bid opening of sealed bids and proposals. No information or opinions concerning the ultimate contract award will be given at bid opening or during the evaluation process. Written bid tabulations will not be furnished. Bids may be examined within 72 hours after bid opening. Information pertaining to completed files may be secured by visiting the Purchasing Office during normal working hours.
5. **Special Accommodations**
   Any "qualified individual with a disability" as defined by the Americans with Disabilities Act, who has submitted a bid and desires to attend the public bid opening, must notify the Purchasing Office in writing not later than seven days prior to the bid opening date of their need for special accommodations. If the request cannot be reasonably provided, the individual will be informed prior to the bid opening.
6. **Standards of Quality**
   Any product or service bid shall conform to all applicable federal, state and local laws and regulations, and the specifications contained in the solicitation. Any manufacturer's name, trade name, brand name, or catalog number used in the specification is for the purpose of describing the standard of quality, performance, and characteristics desired; and is not intended to limit or restrict competition. Bidder must specify the brand and model number of the product offered in his bid. Bids not specifying brand and model number shall be considered as offering the exact product specified in the solicitation.
7. **New Products/Warranty/Patents**
   All products bid for purchase must be new, never previously used, of the manufacturer's current model and/or packaging, and of best quality as measured by acceptable trade standards. No remanufactured, demonstrator, used or irregular products will be considered for purchase unless otherwise specified.
   The manufacturer's standard published warranty and provisions shall apply, unless more stringent warranties are otherwise required by LSU and specified in the solicitation. In such cases, the bidder and/or manufacturer shall honor the specified warranty requirements, and bid prices shall include any premium costs of such coverage.
   Bidder guarantees that the products proposed and furnished will not infringe upon any valid patent or trademark; and shall, at its own expense, defend any and all actions or suits charging such infringement, and shall save LSU harmless.
8. **Descriptive Information**
   Bidders proposing an equivalent brand or model are to submit with the bid descriptive information (such as literature, technical data, illustrations, etc) sufficient for LSU to evaluate quality, suitability, and compliance with the specifications. Failure to

submit descriptive information may cause bid to be rejected. Any changes made by bidder to a manufacturer's published specifications shall be verifiable by the manufacturer. If items bid do not fully comply with specifications, bidder must state in what respect items deviate. Bidder's failure to note exceptions in its bid will not relieve the bidder from supplying the actual products requested.

9. Bids/Prices/F.O.B. Point

- The bid price for each item is to be quoted on a "net" basis and F.O.B. LSU Destination, i.e. title passing upon receipt and inclusive of all delivery charges, any item discounts, etc.
- Bids other than F.O.B. LSU Destination may be rejected.
- Bids indicating estimated freight charges may be rejected.
- Bids requiring deposits, payment in advance, or C.O.D. terms may be rejected.
- Bidders who do not quote "net" item prices and who separately quote an overall "lump sum" freight cost or discount for all items shall be considered as submitting an "all-or-none" bid for evaluation and award purposes; and risk rejection if award is made on an item basis.
- Prices shall be firm for acceptance for a minimum of 30 days, unless otherwise specified. Bids conditioned with shorter acceptance periods may be rejected.
- Prices are to be quoted in the unit/packaging specified (e.g. each, 12/box, etc), or may be rejected.
- In the event of extension errors, the unit price bid shall prevail.

10. Taxes

Vendor is responsible for including all applicable taxes in the bid price. LSU is exempt from all Louisiana state and local sales and use taxes. By accepting an award, resident and non-resident firms acknowledge their responsibility for the payment of all taxes duly accessed by the State of Louisiana and its political subdivisions for which they are liable, including but not limited to: franchise taxes, privilege taxes, sales taxes, use taxes, ad valorem taxes, etc.

11. Terms and Conditions

This solicitation contains all terms and conditions with respect to the purchase of the goods and/or services specified herein. Submittal of any contrary terms and conditions may cause your bid to be rejected. By signing and submitting a bid, vendor agrees that contrary terms and conditions which may be included in its bid are nullified; and agrees that this contract shall be construed in accordance with this solicitation and governed by the laws of the State of Louisiana.

12. Vendor Forms/LSU Signature Authority

The terms and conditions of the LSU solicitation and purchase order/contract shall solely govern the purchase agreement, and shall not be amended by any vendor contract, form, etc.

The University's chief procurement officer, or authorized designee, is delegated sole authority to execute/sign any vendor contracts, forms, etc, on behalf of LSU. Departments are expressly prohibited from signing any vendor forms.

Any such vendor contracts/forms bearing unauthorized signatures shall be null and void, shall have no legal force, and shall not be recognized by LSU in any dispute arising therefrom. Vendors who present any such forms to department users for signature without regard to this strict LSU policy may face contract cancellation, suspension, and/or debarment.

13. Awards

Award will be made to the lowest responsible and responsive bidder. LSU reserves the right: (1) to award items separately, grouped, or on an all-or-none basis, as deemed in its best interest; (2) to reject any or all bids and/or items; and (3) to waive any informalities.

All solicitation specifications, terms and conditions shall be made part of any subsequent award as if fully reproduced and included therein, unless specifically amended in the formal contract.

14. Acceptance of Bid

Only the issuance of an official LSU purchase order/contract, a Notification of Award letter, or a Notification of Intent to Award letter shall constitute the University's acceptance of a bid. LSU shall not be responsible in any way to a vendor for goods delivered or services rendered without an official purchase order/contract.

15. Applicable Law

All contracts shall be construed in accordance with and governed by the laws of the State of Louisiana.

16. Awarded Products/Unauthorized Substitutions

Only those awarded brands and numbers stated in the LSU contract are approved for delivery, acceptance, and payment purposes. Any substitutions require prior approval of the Purchasing Office. Unauthorized product substitutions are subject to rejection at time of delivery, post-return at vendor's expense, and non-payment.

17. Testing/Rejected Goods

Vendor warrants that the products furnished will be in full conformity with the specification, drawing or sample, and agrees that this warranty shall survive delivery, acceptance, and use. Any defect in any product may cause its rejection. LSU reserves the right to test products for conformance to specifications both prior to and after any award. Vendor shall bear the cost of testing

if product is found to be non-compliant. All rejected goods will be held at vendor's risk and expense, and subject to vendor's prompt disposition. Unless otherwise arranged, rejected goods will be returned to the vendor freight collect.

18. Delivery

Vendor is responsible for making timely delivery in accordance with its quoted delivery terms. Vendor shall promptly notify the LSU Department and/or Purchasing Office of any unforeseen delays beyond its control. In such cases, LSU reserves the right to cancel the order and to make alternative arrangements to meet its needs.

19. Default of Vendor

Failure to deliver within the time specified in the bid/award will constitute a default and may be cause for contract cancellation. Where the University has determined the vendor to be in default, LSU reserves the right to purchase any or all goods or services covered by the contract on the open market and to surcharge the vendor with costs in excess of the contract price. Until such assessed surcharges have been paid, no subsequent bids from the defaulting vendor will be considered for award.

20. Vendor Invoices

Invoices shall reference the LSU purchase/release order number, vendor's packing list/delivery ticket number, shipping/delivery date, etc. Invoices are to be itemized and billed in accordance with the order, show the amount of any prompt payment discount, and submitted on the vendor's own invoice form. Invoices submitted by the vendor's supplier are not acceptable.

21. Delinquent Payment Penalties

Delinquent payment penalties are mandated and governed by Louisiana R.S. 39:1695. Vendor penalties to the contrary shall be null and void, shall have no legal force, and shall not be recognized by LSU in any dispute arising therefrom.

22. Assignment of Contract/Contract Proceeds

Vendor shall not assign, sublet or transfer its contractual responsibilities, or payment proceeds thereof, to another party without the prior written consent and approval of the Purchasing Office. Unauthorized assignments of contract or assignments of contract proceeds shall be null and void, shall have no legal force, and shall not be recognized by LSU in any dispute arising therefrom.

23. Contract Cancellation

LSU has the right to cancel any contract for cause, in accordance with purchasing rules and regulations, including but not limited to: (1) failure to deliver within the time specified in the contract; (2) failure of the product or service to meet specifications, conform to sample quality or to be delivered in good condition; (3) misrepresentation by the vendor; (4) fraud, collusion, conspiracy or other unlawful means of obtaining any contract with the University; (5) conflict of contract provisions with constitutional or statutory provisions of state or federal law; (6) any other breach of contract.

LSU has the right to cancel any contract for convenience at any time by giving thirty (30) days written notice to the vendor. In such cases, the vendor shall be entitled to payment for compliant deliverables in progress.

24. Prohibited Contractual Arrangements

Per Louisiana R.S. 42:1113.A, no public servant, or member of such a public servant's immediate family, or legal entity in which he has a controlling interest shall bid on or enter into any contract, subcontract, or other transaction that is under the supervision or jurisdiction of the agency of such public servant. See statute for complete law, exclusions, and provisions.

25. Equal Employment Opportunity Compliance

By submitting and signing this bid, vendor agrees to abide by the requirements of the following as applicable: Title VI and VII of the Civil Rights Act of 1964, as amended by the Equal Opportunity Act of 1972; federal Executive Order 11246; federal Rehabilitation Act of 1973, as amended; the Vietnam Era Veteran's Readjustment Assistance Act of 1974; Title IX of the Education Amendments of 1972; the Age Act of 1975; the Americans with Disabilities Act of 1990. Vendor agrees not to discriminate in its employment practices, and will render services under any contract entered into as a result of this solicitation without regard to race, color, religion, sex, age, national origin, veteran status, political affiliation, handicap, disability, or other non-merit factor. Any act of discrimination committed by vendor, or failure to comply with these statutory obligations when applicable, shall be grounds for termination of any contract entered into as a result of this solicitation.

26. Mutual Indemnification

Each party hereto agrees to indemnify, defend, and hold the other, its officers, directors, agents and employees harmless from and against any and all losses, liabilities, and claims, including reasonable attorney's fees arising out of or resulting from the willful act, fault, omission, or negligence of the indemnifying party or of its employees, contractors, or agents in performing its obligations under this agreement, provided however, that neither party hereto shall be liable to the other for any consequential damages arising out of its willful act, fault, omission, or negligence.

27. Certification of No Suspension or Debarment

By signing and submitting this bid, bidder certifies that its company, any subcontractors, or principals thereof, are not suspended or debarred under federal or state laws or regulations. A list of parties who have been suspended or debarred by federal agencies is maintained by the General Services Administration and can be viewed on the internet at www.epls.gov.

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01 Please note attached insurance requirements and indemnification agreement. Successful bidder will be required to execute the indemnification agreement and furnish a certificate of insurance evidencing required coverages and naming the Board of Supervisors of Louisiana State University and Agricultural and Mechanical College as an additional insured.

02 Inquiry Periods: Note #2 of Special Terms & Conditions added and made a part of this Solicitation.

03 Sealed Bid Delivery Instructions and Advisory: To assure consideration, your bid must be submitted in a sealed envelope or package and should be clearly and prominently marked with the solicitation number and bid due date, or may be submitted in the special bid return envelope if one was furnished for that purpose. Bidders are advised that the U.S. Postal Service does not make deliveries to our physical location. USPS mail is delivered to the University's mail center and is redelivered using internal resources. Bidders may deliver bids by hand or by a courier service to our physical location at the "Return Bid To" address specified. The University shall not be responsible for any delays caused by the Bidder's chosen means of bid delivery. Bidder is solely responsible for the timely delivery of its bid, and failure to meet the bid due date and time shall result in rejection of the bid. Your attention is also directed to Standard Terms & Conditions No. 1 - Bid Delivery and Receipt.

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ITEM No.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
	UNLESS SPECIFIED ELSEWHERE, SHIP ALL ITEMS TO: LSU PROCUREMENT AUXILIARY SVS Graphic Services 3555 River Road Baton Rouge, LA 70803				
0001	Commodity Code: 600-72 Lease of Multi-function Office Machines for copying, network printing, and scanning for LSU departments, per the attached specifications. Term of contract shall be for 5 years. Anticipated effective period is July 1, 2006 through June 30, 2011.	60.00	MO	$ _____	$ _____

BOARD OF SUPERVISORS
LOUISIANA STATE UNIVERSITY AND
AGRICULTURAL & MECHANICAL COLLEGE
Purchasing Office, 213 Thomas Boyd Hall
Baton Rouge, LA 70803-3001

INSURANCE REQUIREMENTS

WORKMEN'S COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE: The Contractor shall, before commencing any work to be conducted under this contract, procure Workmen's Compensation and Employer's Liability insurance with a limit of liability as required by the Labor Code of the State of Louisiana with an insurance company authorized to write such policies of insurance in the State of Louisiana. It shall be the further responsibility of the Contractor to require that all subcontractors have in full force and effect, a policy of Workmen's Compensation and Employer's Liability insurance before proceeding with any of the work required under this contract. The Employer's Liability limit shall be $1,000,000 when work is over water and involves maritime exposure.

COMMERCIAL GENERAL LIABILITY INSURANCE: Commercial General Liability Insurance with a combined single limit of $1,000,000 per occurrence for bodily injury and property damage. This insurance shall include the following coverage:

1. Premises - Operations;
2. Broad Form Contractual Liability;
3. Products and Completed Operations;
4. Use of Contractors and Subcontractors;
5. Personal Injury;
6. Broad Form Property Damage;
7. Explosion, Collapse and Underground (XCU) Coverage.

BUSINESS AUTOMOBILE LIABILITY INSURANCE: Business Automobile Liability Insurance with a combined single limit of $1,000,000 per occurrence for bodily injury and property damage, unless otherwise indicated. This insurance shall include for bodily injury and property damage the following coverages:

1. Owned automobiles;
2. Hired automobiles;
3. Non-owned automobiles.

If the vendor/contractor does not own an automobile and an automobile is utilized in the execution of the contract, then only hired and non-owned coverage is acceptable. If an automobile is not utilized for the execution of the contract, then automobile coverage is not required.

Board of Supervisors of Louisiana State University and Agricultural & Mechanical College shall be named as additional insured on all liability policies. A Thirty (30) day prior notice of cancellation must be given to the University for all required coverages. Insurance must be from a company with an A.M. Best's rating of no less than A-:VI who is authorized to do business in the State of Louisiana. The A.M. Best's rating requirement may be waived for Worker's Compensation only.

The successful contractor is to provide the owner with a certificate of insurance prior to commencement of work.

Rev. 02/12/03

INDEMNIFICATION AGREEMENT

The _____ (Contractor) agrees to protect, defend, indemnify, save, and hold harmless Louisiana State University and A & M College, the State of Louisiana, all State Departments, Agencies, Boards and Commissions, its officers, agents, servants and employees, including volunteers, from and against any and all claims, demands, expense and liability arising out of injury or death to any person or the damage, loss or destruction of any property which may occur or in any way grow out of any act or omission of _ (Contractor), its agents, servants, and employees, or any and all costs, expense and/or attorney fees incurred by _____ (Contractor) as a result of any claim, demands, and/or causes of action except those claims, demands, and/or causes of action arising out of the negligence of Louisiana State University and A & M College, the State of Louisiana, all State Departments, Agencies, Boards, Commissions, its agents, representatives, and/or employees. _____(Contractor) agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit at its sole expense and agrees to bear all other costs and expenses re lated thereto, even if it (claims, etc.) is groundless, false or fraudulent.

Accepted by _____
Company Name

_____
Signature

_____
Title

Date Accepted _____

Is Certificate of Insurance Attached? ____Yes ____No

Bid or RFQ No. _____ for Board of Supervisors of Louisiana State University and A & M College

Purpose of Contract: _____

Rev. 2/12/03

NOTE #2
Special Terms & Conditions

Inquiry Periods:

An initial inquiry period is firmly set per the schedule below for all interested bidders to perform a detailed review of the solicitation documents and to submit any written quotations relative thereto. **Without exception,** all questions MUST be in writing and received by the close of business on the Inquiry Deadline date set forth in the Calendar of Events. **Initial inquiries shall not be entertained thereafter.**

The University shall not and cannot permit an open-ended inquiry period. This creates an unwarranted delay in the procurement cycle and operations of our customers. The University reasonably expects and requires responsible and interested bidders to conduct their in-depth solicitation review and submit inquiries in a timely manner.

Further we realize that additional questions or requests for clarification may generate from University addendum responses to the inquiries received during the initial inquiry period. Therefore, a **final 3-day inquiry period** shall be granted. Questions relative to the addendum shall be submitted by the close of business three-working days from the date the addendum is faxed/emailed to bidding vendors or made available on the LaPac site. If necessary, another addendum will be issued to address the final questions received.

Thereafter, all solicitation documents, including but not limited to the specifications, terms and conditions, etc. will stand as written and/or amended by addendum issued, if any, as a result of the final inquiry period.

No negotiations, decisions, or actions shall be executed by any bidder as a result of any oral discussions with any University employee. The University shall only consider written and timely communications from bidders.

Inquiries shall be submitted in writing by an authorized representative of the bidder, clearly cross-referenced to the relevant solicitation section. Only those inquiries received by the established deadline shall be considered by the University. Answers to questions that change or substantially clarify the solicitations shall be issued by addendum and provided to all perspective bidders.

Inquiries concerning this solicitation may be delivered by mail, express courier, email, hand or fax to:

Louisiana State University and A & M College
Attention: Sandra G. Gillen
Office of Purchasing
213 Thomas Boyd Hall
Baton Rouge, LA 70803-3001
Ph) 225-578-2285
Fx) 225-578-2292
Email) sgille2@lsu.edu

Inquiry Schedule: (Note: The University reserves the right to amend this schedule as required.)

Event	Date
Deadline for Initial 1st Vendor Inquiries	March 20, 2006
Deadline for University Response	March 27, 2006
Deadline for Final Vendor Inquiries	March 30, 2006

LSU TERM CONTRACT – SPECIAL CONDITIONS

These special conditions shall apply to LSU Term Contracts, in addition to all Standard Terms and Conditions above.

A "Term Contract" is defined as an agreement with a Vendor to provide specified goods and/or services on an as-needed basis at established prices, terms and conditions during a specific period of time (or term), and does not guarantee usage. Such pricing agreements are commonly referred to as standing agreements, open end contracts, and requirements contracts. Purchase/release orders issued against term contracts serve as the Vendor's authorization to ship goods and/or provide services.

1. Scope of Contract
This solicitation is issued to establish a term contract for the specified goods and/or services for the period beginning **time of award** and ending **5 years later**, in accordance with all specifications, terms, and conditions.

2. Initial Contract Period
LSU intends to award all items for the initial contract period specified above. Award delays beyond the anticipated contract begin date may result in an initial award less than the specified contract period.

3. Contract Renewals/Extensions
At the option of LSU and acceptance by the Vendor, this contract may be renewed for 0 additional 0 month periods, or extended in partial increments thereof, at the same prices, terms and conditions of the original contract award. Total contract period not to exceed thirty-six (36) months.

4. Estimated Quantities
It is understood that LSU shall not be held responsible for purchasing any specified amount. Solicitation quantities shown are estimated only and may be based on historical contract usage and/or projected needs. Where usage is not available, a quantity of one (1) indicates a lack of history on this item. The successful Vendor must supply any order requirements at the bid/contract prices, whether the total of such requirements are more or less than the estimated quantities shown.

5. Firm Pricing
Contract prices shall remain firm for the duration of the contract term; and no price increases will be allowed, unless escalation/de-escalation provisions are specifically provided for herein. Prices may not exceed the current nationally advertised and available General Services Administration (GSA) Price Schedule if one exists.

LSU is a member of the National Association of Educational Buyers (NAEB) and the E & I Cooperative Purchasing Service.

6. Insurance Requirements
If an automobile is utilized in the execution of the contract, including deliveries made with company owned, hired, and/or non-owned vehicles, successful bidder shall be required to furnish a certificate of insurance evidencing coverages per attached insurance requirements. The Board of Supervisors of Louisiana State University and Agricultural & Mechanical College shall be named as an additional insured on all liability policies.

7. Vendor Parking on the LSU Campus – Permits & Gate Passes
Vendors and contractors needing access to reserved, gated "C" parking lots for logistics in performing business with LSU must apply for gate passes through the LSU Office of Parking, Traffic and Transportation (PTT). Visit the LSU/PTT website at www.lsu.edu/parking and the 'Permits' webpage for details.

Vendor requests are considered and granted by PTT, subject to an annual fee and qualifying criteria. Vendors not qualifying for gate passes may be granted general permits for street parking. All vendors are responsible for adhering to LSU Parking Rules and Regulations – see the PTT "Information" webpage. Direct any questions to PTT at 225-578-5000 or visit their office located in the Public Safety Building on South Stadium Road.

8. Vendor Non-Performance
Vendor is required to perform in strict accordance with all contract specifications, terms, and conditions. Vendor will be advised in writing of non-performance issues and shall be required to promptly implement corrective actions to ensure contract compliance and to prevent recurrences. In the event Vendor is issued three (3) or more complaints of non-performance, LSU reserves the right at its sole discretion to cancel the contract with a ten (10) day written notice. Contract cancellations due to non-performance may be cause to deem the Vendor non-responsible in future solicitations.

9. Contract Amendments
Requests for contract changes must be made in writing by an authorized agent/signatory of the Vendor and submitted to LSU Purchasing for prior approval. Requests shall include detailed justification and supporting documentation for the proposed amendment.

Contract revisions shall be effective only upon approval by LSU Purchasing and issuance of a formal LSU Contract Amendment. The Vendor shall honor purchase/release orders issued prior to the approval of any contract amendment as applicable.

10. Price Reductions
Whenever price reductions are made by the Vendor/Manufacturer during the LSU contract term, and which are offered to similarly-situated customers [i.e. those contracting under similar terms, conditions, periods, etc], and which are lower than LSU contract prices, said reductions shall be afforded to LSU.

Vendor shall give prompt written notice to LSU Purchasing of any such price reduction and effective date for issuance of a formal contract amendment. Price reductions must be offered to all departments. Vendors found to have knowledgably and willfully withheld such price reductions may be required to reimburse LSU of any overcharges.

11. Product Substitutions
Only those awarded brands and numbers, furnished in the packaging/units of measure and at the unit prices stated in the LSU contract, are approved for order, receipt, and payment purposes. Unauthorized product substitutions are subject to rejection at time of delivery, post-return at Vendor's expense, and non-payment.

By submitting a bid, Vendors are expected to have sound supplier agreements in place to support and responsibly perform their contractual term obligations with LSU. Unless discontinued by the manufacturer without replacement, Vendors are expected to honor the awarded brands/numbers throughout the contract term. Substitution requests based merely on the Vendor's own elective change to another supplier may be disapproved at the sole discretion of LSU Purchasing.

Departments are not authorized to approve or accept product substitutions without Purchasing approval. Vendors who act without regard to this procedure may face contract cancellation, suspension, and/or debarment.

12. Right to Add Department Users
Where this solicitation may name one department as the primary contract user, the University reserves the right to authorize additional departments to use the contract as their needs arise; and Vendor shall honor all such purchase/release orders.

13. Non-Exclusivity
This agreement is non-exclusive and shall not in any way preclude LSU from entering into similar agreements and/or arrangements with other Vendors or from acquiring similar, equal, or like goods and/or services from other entities or sources.

14. Contract Usage Report
The Vendor shall keep records of all purchases under this contract and shall be prepared to furnish a contract usage report to LSU upon request at any time during the contract term. Contract usage reports must minimally capture and report the following: item numbers and brief item descriptions; total quantities and dollars for each item subtotaled by using department names; and overall contract quantities and dollars.

15. Contract Evaluation
LSU Purchasing welcomes suggestions for contract improvements to effectively meet the needs of the departments we serve. Department feedback relative to the incumbent Vendor's performance will be requested for consideration when determining our contract options for renewal or re-solicitation. Vendor performance will be monitored for compliance with contract terms and conditions, and reports of deficient performance will be appropriately addressed with the Vendor.

The following forms are tools for evaluating our contracts and Vendor performance, and may be accessed at our website (www.fas.lsu.edu/purchasing) under Forms/General:

- PUR512 Contract Suggestions
- PUR514 Contract Performance Evaluation
- PUR515 Deficiency/Complaint Report

16. Termination for Non-Appropriation of Funds
The following condition shall apply to any contract covering multiple fiscal years:
The continuation of this contract is contingent upon the appropriation of funds by the legislature to fulfill the requirements of the contract. If the legislature fails to appropriate sufficient monies to provide for the continuation of the contract, or if such appropriation is reduced by the veto of the governor or by any means provided in the appropriations act of Title 39 of the Louisiana Revised Statutes of 1950 to prevent the total appropriation for the year from exceeding revenues for that year, or for any other lawful purpose, and the effect of such reduction is to provide insufficient monies for the continuation of the contract, the contract shall terminate on the date of the beginning of the first fiscal year for which funds have not been appropriated.

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SPECIFICATIONS FOR
LEASE OF DIGITAL MULTIFUNCTION DEVICES
for
COPIER MANAGEMENT PROGRAM AT LOUISIANA STATE UNIVERSITY, Baton Rouge, La.

1.0 BACKGROUND

University departments of the main campus of Louisiana State University, Baton Rouge are required to obtain reproduction equipment from the Copier Management Program (LSU CM). These departments can not enter into any other agreements for reproduction equipment without LSU CM approval. LSU CM approval would only be granted if a department's needs could not be satisfied by this contract. The department does have the right to decide that reproduction equipment is no longer needed by them. Other Baton Rouge area campus departments of the Louisiana State University System such as but not limited to the Law Center, Agricultural Center, and Pennington Bio-medical Center may also obtain equipment through LSU CM but not required to do so. The solicitation excludes any digital document systems, copiers or printers for which the University has separate contracts and agreements.

2.0 PURPOSE

To obtain bids for the lease of digital multifunction devices and required services as further described herein Paper and transparencies are not a requirement of this solicitation.

3.0 PRICES/COST

The University is soliciting costs on a "cost per print" basis for digital multifunction devices* and services described herein (i.e. copying/network printing/scanning printers). 'Cost per print' is to be inclusive of all equipment, inside delivery, installation, training and service costs necessary to setup, connect and perform specified functions from equipment. **_Bids with pricing that includes a monthly minimum will be rejected from further consideration.**

Base Bid requires pricing for levels 2, 3, 4, 5 for equipment that is Business Color Capable. Alternate Bid #1 requires pricing for levels 2 and 3 equipment that is Business Color Capable. Alternate Bid #2 requires pricing for all equipment that is Monochrome.

*NOTE: All quoted prices are to be for **new equipment manufactured from new parts, except that equipment requested after December 31, 2008 may be used.** Used equipment provided must meet specifications currently defined in this solicitation. In addition, the ending meter reading of the used equipment is not to substantially exceed the current average ending meter reading of existing placements of the same level.

3.1 ADDITIONAL COSTS

The only time an additional charge for this equipment or service may be assessed is when there is documented physical evidence of abuse by user or as otherwise allowed by this solicitation and authorized by LSU CM.

3.2 COSTS DUE TO CANCELLATION

The contract may be cancelled if bidder does not satisfactorily meet service standards defined in this document. In the event the contract is terminated as allowed per CANCELLATION TERMS defined in this solicitation, LSU will not be responsible for or incur cost or charges associated with the termination, for example removal of the equipment, etc. Equipment is to be removed within 30 days of termination.

3.3 FORCE MAJURE COSTS

Awarded Vendor shall be responsible for all equipment cost replacement associated with acts of God including hurricanes and natural flooding.

4.0 REPLACEMENTS/SUBSTITUTIONS

If Buyers Laboratory Inc. has tested equipment models submitted by bidding vendors listed on Attachment "A", the resulting status is to be "recommended" and the recommended monthly volume must meet bid requirements for level to which it is being specified.

At anytime during the term of the contract the equipment bid by the successful bidder is no longer manufactured, the contract vendor is to substitute with replacement of new built model meeting or exceeding all specifications included in this solicitation and as further allowed per section 7, **New Products/Warranty/Patents**, of the Standard Terms & Conditions of this Invitation to Bid. Only exception to this section is when used equipment is allowed as defined in the Specifications section 3.0 PRICES/COSTS.

5.0 TERM OF CONTRACT

Effective term of contract is to be for a five-year period Anticipated effective dates of the contract resulting from this solicitation is July 1, 2006 through June 30, 2011.

6.0 AWARD OF CONTRACT

Award, on an all-or-none basis shall be made to a single vendor deemed technically and administratively responsive to this solicitation and offering the lowest evaluated cost . Award shall be by issuance of a purchase order.

The University reserves the right to award Base Bid only, or either of the Alternates, whichever is deemed in the University's best interest.

No minimum or maximum number of units is guaranteed during the contract period as specified in LSU TERM CONTRACT-SPECIAL CONDITIONS section 4 Estimated Quantities. However historical usage information is provided in Exhibit A.

7.0 TECHNICAL SPECIFICATIONS

Specifications for digital multifunction devices with estimated quantity requirements at each level of copy volume is specified herein.

The multifunction devices will be assigned to departments based on their individual past 4. 5 year actual average copy volumes. Copy volume levels* to be used for placement purposes within departments are sited below.

*NOTE: Annually, actual volumes may be reviewed by LSU CM and if the equipment's average volume does not fall within the volume range for the originally specified equipment, the LSU CM and the vendor may replace existing equipment with replacement equipment that is within a more appropriate average monthly range. The replacement copier may be new, originally placed as new, elsewhere on campus as a part of this contract, or meet the requirements of used equipment as sited elsewhere in this document if placed after December 31, 2008.

7.1 IDENTIFIED LEVELS FOR MULTIFUNCTION DEVICES (MFD)

Level	Average Monthly Range	Estimated Number Machines (1)	Machine Type	Black White Speed CPM/PPM*	Color Speed CPM/PPM*
1	0 to 2,999	101	Monochrome	15	Not applicable
2	3000 to 6000	70	Monochrome & Color capable	20	10
3	6,000 to 9,999	64	Monochrome & Color capable	30	20
4	10,000 to 16,999	64	Monochrome & Color capable	40	35
5	17,000 to 34,999	60	Monochrome & Color capable	50	40
6	35,000 to 59,999	10	Monochrome	60	Not applicable
7	60,000+	6	Monochrome	70	Not applicable

Required CPM-copies per minute/ PPM-prints per minute - defined as the number of prints of a single original that can be made in a minute both through the scanner/document feeder or submitted as a print job. For a print job the rated print speed does not include ripping and spooling.

(1)Estimates stated here also include machines that are currently placed in the campus department's that are not obligated to use the contract as discussed in section 1.0 BACKGROUND. Current number of users per level that are NOT obligated to use the contract are per the following: Level 1- 17, Level 2- 14, Level 3- 4, Level 4- 9, Level 5- 4 NOTE: Historically they have used the program.

7.2 SPECIFICATIONS OF ALL MFD WHEN USED AS A COPIER, SCANNER or PRINTER:

Type	Digital Printer/Copier/Scanner
Model	Console Or Equipped With Stand Or Non Locking Cabinet
Power Requirements	120V except 220V is acceptable for Level 6&7, 60 Hz, Sufficient Surge Protection for voltage regulation
Network Connection	No more than a Single 10/100 Ethernet port to be required for all operations
Print/Copy Resolution	600x600
Halftone Reproduction	256 Gradations
Maximum Original Size	Up To 11x17, **except Level 1 11 x17 not required**
Exposure Modes	Auto, Manual, Photo
Copy Size	5.5x8.5 To 11x17, except Level 1 up to 8 ½ x 14
Auto Document Feeder	**50 Sheet except for Level 1 30 sheet,** Up to 8 ½ x14, Duplexing, Paper Weight: to 34lb, Scans Original At No Less Than 80% of Rated PPM of the Unit and utilizes Scan Once Print Many.
Duplex	Unlimited Duplexing Letter & Legal
Paper Weight	Trays And Duplex: 20 to 28lb Bond, Bypass: 16lb Bond To 40lb bond, except Level 1-31lb.
Copy Type	Plain Paper, Transparencies, Labels, Envelopes Type, Size, & Brand for transparencies and labels are to be Specified by Vendor, see Section K #6
Meter Reading	Separate Copy, Color, Print, Scan Meters, Capable of Being Downloaded Through IP To .CSV or .TXT Tab Delimited File for Uploading into Database for Accounting Purposes.
User Access Codes/Copy Track	**Min 100 User Codes except at Level 1 50** with Settable Limits, Individual Meters, Lock Job Feature, Copy Track Management Report. **On print job, must pass through Centralized Print Server.**
Magnification	25% To 400%,
Hard Drive	**Memory of 20 GB or greater, except at Level 1, no hard drive**
Print/Copy Memory	**64 MB Ram or greater except at Level 1-32 MB**
Operating Systems	Windows 98/Nt4.0/2000/Xp/2003 Server/Apple Macintosh OS 8.6 –9.X/OS10.X, Linux
Interfaces	USB1.1 Standard, Parallel IEEE 1284

Printing	Standard GDI, PCL5e/6 and Adobe Postscript 3 or Postscript 3 emulator Internal Print Controller, **Direct Socket IP Printing**
Scanning	Embedded Scan To Email, HDD, Folder, URL Formats: TIFF, PDF, Multi Page TIF, PDF, TCP/IP, SMTP, FTP, POP3, OCR software and any other software necessary to perform above functions
Security	Prevent Files Remaining on Hard Drive From Being Accessible, Security code from print driver, encrypted data in bitstream, AccountCode/Authorization Code and Lock Job/Locked Print entry available from print driver options
Other Standard Features	Auto Copy Start, Auto Tray Switching, Auto/Manual Exposure, Auto-Image Rotation Or Auto Image Orientation, Auto Panel Reset, Auto Paper Selection, Auto Magnification, Electronic Sorting, Energy Save Mode, Copy/Print Priority Adjustment, Operator Manual

7.3 ADDITIONAL REQUIREMENTS BY LEVEL:

Level	Paper Capacity	Finishing
1	500 sheets	Sort, Collate, offset stacking of Letter, Legal
2	2000 sheets	Sort, Collate, offset stacking of 750 sheets Letter, Legal, 11x17 Single staple 30 pages letter, legal, 11x17
3	3000 sheets	Sort, Collate, offset stacking of 750 sheets Letter, Legal, 11x17 Single staple 30 pages letter, legal, 11x17
4	3000 sheets	Sort, Collate, offset stacking of 1500 sheets Letter, Legal, 11x17 Multi staple 50 pages letter, legal, 11x17, 3-hole punch
5	4000 sheets	Sort, Collate, offset stacking of 1500 sheets Letter, Legal, 11x17 Multi staple 50 pages letter, legal, 11x17, 3-hole punch
6	4000 sheets	Sort, Collate, offset stacking of 1500 sheets Letter, Legal, 11x17 Multi staple 50 pages letter, legal, 11x17, 3-hole punch
7	4000 sheets	Sort, Collate, offset stacking of 1500 sheets Letter, Legal, 11x17 Multi staple 50 pages letter, legal, 11x17 Booklet finisher, 3 hole Punch, Z-fold upon customer request

7.4 NETWORK PRINTING REQUIREMENTS

MFD quoted shall be network printing capable in the standard environments defined below with all costs included in the cost per copy/print submitted by bidding vendor. See Price Schedule Appendix "A".

NOTE: The following specifications are designed to meet current as well as future printing expectations for the LSU community. In addition to the following specifications please make note of the required times to print DOCUMENT SUITE listed below under Testing. The Document Suite to be satisfied is provided with this solicitation.

Level	Controller/Processor	Printer/Scan RAM Memory
1	233 Mhz or greater	128 MB or greater
2	233 Mhz or greater	256 MB
3	400 Mhz or greater	256 MB
4	400 Mhz or greater	256 MB
5	400 Mhz or greater	256 MB
6	600 Mhz or greater	384 MB
7	600 Mhz or greater	384 MB

Print Drivers to support defined Standard Environment below. 90% of unit features to be available but must include full functionality of finishing, basic paper selection, and stapling.

All firmware upgrades shall be included and shall be installed by vendor's technicians.

Print Controllers shall also be included and shall be installed by vendor's technicians

Network Card shall be provided for all standard environments

Auto or Adjustable baud rate shall be required.

7.5 STANDARD OPERATING ENVIRONMENT

Network Topology:	TCP/IP
Cabling:	100/1000 Base T, IEEE1284 Parallel, Category 5 or Category 6
Networks/Protocols	PJL support. To perform Direct Socket IP Printing
Servers	Windows NT, Windows 2000, Windows 2003, Unix/Linux, Apple/MacIntosh Protocol: TCP/IP
Software:	Any and all Windows and Apple Applications

7.6 TESTING REQUIREMENTS

1. Prior to award the lowest bidder that meets all other specifications is required to demonstrate ability to connect and print according to specifications from standard environments detailed above.
2. Each model bid with a different print controller type is to be tested.
3. LSU CM will provide location, network access as well as computers with software from which bidder is to print document suite provided as described below.
4. Within 48 hours of initial test start time, the bidder is to demonstrate printing capability. LSU CM to document results.
5. If a printing failure occurs, the vendor will have one(1) more opportunity to succeed. Timeframe to be no more than 6 working days from original printing failure.

Document Suite to be Printed Black and White (See Exhibit B and as provided on CD)

1. **1 page black.doc:** This is a single page of simple format text in black and white with no images. The format is Microsoft Word
2. **Adobe 20 page color.pdf:** This is a complex twenty page color document with both text and quality images. The format is Adobe PDF.
3. **Configuration of OSX 4 page color.pdf**: This is a four page color document includes text and screenshot images. It was created from Microsoft Word is in Adobe PDF format.
4. **4 page Heavy Images Color.pdf:** This is a four page color document with more images than text. It was created in Quark and run through Adobe Distiller on a Macintosh to create a PDF output.

Below is a table which defines the **expected Total Output Speed (TOS)**. TOS is defined as the total output speed from the time the print button is depressed on a workstation to the time you have all output hardcopies in hand. This is to include the spool, rip and print time.

The equipment is to meet or exceed the TOS within a 10% variance. **Note: Output is to be black and white even if the file is a color document.**

Expected Total Output Speed(TOS)

LEVEL	DOCUMENT #1	DOCUMENT #2	DOCUMENT #3	DOCUMENT #4
1	33 seconds	430 seconds	67 seconds	68 seconds
2	33 seconds	430 seconds	67 seconds	68 seconds
3	32 seconds	422 seconds	65 seconds	67 seconds
4	26 seconds	95 seconds	47 seconds	45 seconds
5	25 seconds	96 seconds	46 seconds	43 seconds
6	24 seconds	93 seconds	44 seconds	40 seconds
7	23 seconds	92 seconds	43 seconds	39 seconds

7.7 PRINT MANAGEMENT SOFTWARE

Print Management Software is to be provided that can be loaded on a Wide Area Network to allow LSU CM to identify problems with units from a Central Service Location and gather print data as to the type of jobs being duplicated. Software must allow for the import/export of a list of IP addresses and to allow User to see status of the machine from their computer including but not limited to the following: printer error, paper jam, door open, machine offline, toner and paper low, add toner and paper, add staples, job complete .

Software application to automatically collect monthly Copy, Print and Scan meter readings from networked machines using IP addresses, to be downloaded to a file(.csv or .txt, tab-delimited). If machine is both monochrome and color capable separate meter readings for each are to be available.

7.8 ADDITIONAL EQUIPMENT

Special Event Equipment
This equipment shall to be available to LSU CM for seasonal events and short-term programs and functions. This equipment cost shall also be bid on a 'cost per print' basis. Price Schedule, Attachment A is to be used bid. . It is expected that two Level 1, one Level 2 and one Level 4 units will be needed. These units shall meet all machine and level requirements as specified in Section 10.1 of these specifications. Vendor will deliver and pickup from the special event location.

Book Copier Device
An attachment to be installed on the multifunction device which allows user to easily copy books without causing damage to the binding or spine of the book, and has automatic image correction to compensate for the curvature of the page. This attachment, though required, is expected to be requested on a very limited basis.

Fax Attachment
Needed is an attachment and all its components necessary to fax documents from the bid equipment. An attachment to be installed on the multifunction device which allows user to easily copy books without causing damage to the binding or spine of the book, and has automatic image correction to compensate for the curvature of the page. This attachment, though required, is expected to be requested on a very limited basis.

8.0 EQUIPMENT ORDERS, INSTALLATIONS AND REMOVALS

It is expected that the initial equipment order will be placed between April 15 and April 30, 2006. The contract will require that all equipment be placed no later than August 31, 2006 with the majority placed by July 31, 2006. At the direction of LSU CM the installation of the equipment will begin approximately June 19, 2006. (These dates are desired but are subject to change ONLY if delay is due to LSU's delay in award.

A staging area for these initial deliveries will be provided by the University. The equipment is to be installed ready to copy/ print /scan according to specifications.

Whether at initial or subsequent installation, LSU CM will provide a network ready environment at locations that require it. LSU CM will also provide network configuration at staging or installation. LSU CM will provide LAN patch cable. It will be LSU CM's responsibility to obtain access to department's computer workstations. LSU CM is to coordinate installation, obtain the IP address and ensure a network connection is active. Vendor is to input access codes based on LSU CM or delivery department provided information.

Vendor is to perform workstation print driver configuration and installation at initial order installation. LSU CM will handle for subsequent installations.

Vendors are hereby advised that some locations require delivery to other than first floor of campus buildings and may require additional equipment to facilitate delivery. All installation costs are to be included even when stairs, additional equipment, etc. is required. See Exhibit C for a listing of some identified campus sites that are referred to herein. **THIS LIST MAY NOT BE ALL INCLUSIVE.**

All subsequent installations and removals of multifunctional devices (MFD) are to be authorized by LSU CM Manager whose name and contact information will be provided to the successful vendor.

Orders to install or remove MFDs are to be completed within 31 calendar days of order, except as noted elsewhere in this document for initial install. Installation and acceptance of equipment will not be complete until users' training is concluded and equipment is fully functional as to copying/printing/scanning as specified.

Initial installation as well as subsequent installation shall be within stated timeframe. Evidence of inability to deliver or intentional delays shall be cause for contract cancellation. Installation shall include inside delivery to the required destination and includes furnishing of any equipment, rigging, and materials required to install or replace the product in the proper location at no additional cost to the University except as allowed for Special Event equipment and moves after initial install addressed elsewhere herein.

Damages by vendor during installation, shall be repaired by vendor at no additional cost to the University. Work shall be done at least inconvenience and interference with customers. Upon completion of the installation, the location and surrounding area of work shall be left clean and in a neat and unobstructed condition.

9.0 EQUIPMENT MOVES

Vendor to handle location moves as directed by LSU CM. It is estimated that 2 location moves occur a month. Vendor shall submit a per hour charge for moving equipment after initial install. (This charge is NOT APPLICABLE to Special Event Equipment whose price per copy printed is to be all inclusive of move-in/move-out charge, etc.) This cost will be considered in the cost evaluation for award purposes.

If LSU CM desires to handle the location move, LSU CM shall not be held responsible for damage, if any, caused by the move.

10.0 TRAINING

10.1User Training
Training shall be coordinated through LSU CM at time of installation. On-site training for each department installation is required.

Vendor is to provide key operator training on all functions within 2 days of being notified that all requirements to connect are in place. Training is to include Preferred Business Practices recommended for efficient/effective task performance using supplied equipment.

10.2 Training of LSU CM Technical Support Group

Vendor will provide the LSU CM staff with assigned authorized service dealer training, not manufacturer sponsored training, on all digital equipment and network printing components utilized in this program. LSU CM is to be able to demonstrate basic network printing processes. This training is to be completed prior to initial installation of equipment. Any training cost, including travel costs (if applicable) shall be included in this 'cost per print' price bid. Service code list is also to be provided as specified herein.

11.0 SERVICE

Bid price is to include the cost for service inclusive of all preventative maintenance, emergency calls, parts, labor and all other charges required to keep the digital equipment fully operational and maintained in good working order, including network printing in the standard environment defined in Section 7.4..

LSU CM maintains a staff to receive and coordinate service calls as well as first response to service calls. This eliminates unnecessary calls for the vendor and helps determine the source of problem to help streamline the repair process. LSU CM staff's evaluation will determine whether or not a service call to the vendor is needed. The vendor is to provide all LSU CM staff members with a communication device to facilitate contact with the vendor's technicians. Four (4) devices are being provided by current contractor.

Network printing service calls are to be handled by the vendor. The vendor is to determine if the MFD is functioning properly and if not, then it is the responsibility of the vendor to correct the problem. If it is determined that the MFD is not the cause of the problem, the service vendor is to notify the department contact as well as LSU CM. Although not required on location, bidder is to have available to technicians and LSU CM, an MCSE certified network specialist or CN/A as needed.

Vendor will receive all service calls directly from the LSU CM Technical support group and must clear the calls through the same group who reports how the call was resolved, nature of the problem and service copies made. LSU CM may prioritize service calls if necessary, otherwise service is to be provided in the order that they were reported. **Vendor is to supply a complete list of service codes and their description upon award .**

Backup digital equipment and print controllers are to be provided on an as-needed basis at no additional charge.. Requests for these items will only be made when equipment is out of service in excess of 6 hours and it is clear the customer has an urgent need and further repair delay is expected. Any service, supplies or parts needed for the backup units

are to be included. Backup equipment at every level is to be available for immediate delivery by the vendor or vendor's service dealer when the equipment 'out of service' time exceeds 6 hours.

Technicians to meet the service requirements detailed herein shall be provided. Two technicians have been used during the current contract period to service LSU CM's needs. It is the intention that, at a minimum, the vendors provide service on copying, printing and scanning problems according to Satisfaction Service Indicators sited in section 11.2. Every working day the vendor supplied lead technician must report to LSU CM at 8:00 to handle service calls.

NOTE: The technicians are not employees of LSU and are not entitled to any benefits, etc., extended to LSU employees.

Work hours for technicians shall be the same as the LSU CM staff, currently 8:00 to 4:30, Monday through Friday. The holiday schedule for LSU staff employees will be observed. A calendar of these holidays is available from the LSU website at www.lsu.edu.

LSU CM will provide a work area for service technicians. A phone without long distance access will be provided. If long distance service is needed the bidder must bear the cost.

11.1 SERVICE EXCEPTION

An exception to this requirement is that a technician must be provided in the LSU Press Box during every LSU home football game for approximately six hours.

11.2 SATISFACTORY SERVICE INDICATORS INCLUDING COPYING, NETWORK PRINTING AND SCANNING SERVICE CALLS

A. Expected response time is 2 hours per call, an average per call calculated by month of 4 hours is acceptable and any response time exceeding 6 hours is unacceptable. The data is to be tracked by the LSU CM technical support group as well as vendor. **Response time** is defined as the time from the point the call is placed until the technician responds to CM technical support with problem description, resolution or resolution plan with expected completion date as well as service copies. The response time only includes working hours. It is expected that the response time and completion time is to be the same except when parts are not on hand and this is to be documented.

B. Expected service completion time is 8 hours. An average monthly completion time exceeding 12 hours is unacceptable. **Service completion** is defined as the time from the point the call is placed until the particular problem is resolved per technician's call to CM technical support as well as service copies.

C. If monthly average expected response and completion times are violated a written response will be required. If the following month the response or completion time is not improved the bidder must supply additional technicians to assure compliance. The incidences of non-compliance include those cases when parts are not available. **If non-compliance with response and completion times occurs in 3 separate months this contract may be terminated.**

D. Reoccurring problem (3 or more times) with a particular machine may result in a detailed review of the problem. Once a solution is determined and implemented if the problem reoccurs the copier must be replaced if requested by LSU Technical Support Group.

E. Vendor non-compliance with all contractor specifications, terms and conditions is subject to the conditions as sited in LSU TERM CONTRACT-SPECIAL CONDITIONS, section 8, **Vendor Non-Performance.**

12.0 SUPPLIES and PARTS

Inventory Items and Levels

All supplies and parts, except paper and transparencies, including replacement parts such as but not limited to the following: toner, developer, drums, blades, organic photo conductors, safety retrofits, rollers, belts, corona wires, platen, sensors, lenses, lubricants, PM kits, software, programming, emergency calls including staples and staple wire to be supplied by the vendor and included in the cost per print. Adequate levels of parts and supplies must be in inventory at all times. Bidder is responsible for the performance and compatibility of the supplies to the equipment.

Parts Inventory

Part inventories are to be maintained by awarded vendor with locked storage access at a LSU CM site. After hours access to parts will be provided if necessary. If equipment repair is impaired by untimely access to parts, LSU CM may request overnight delivery at bidder's expense.

12.1 Reorder Points and Quantities

LSU CM will determine reorder points and quantities with input from bidder and maintain that quantity on site by submitting approved orders to awarded bidder. Delivery of the requested supplies must be made within 7 working days of order. LSU CM will maintain the inventory records and serve as the "store" for copier users. LSU CM will take orders and deliver supplies to copier users. At any time the awarded vendor may request listings of supply usage.

Unused supplies are to be returned to bidder at the end of contract period at no cost to the University.

13.0 INVOICING/METER READINGS/MEETINGS

INVOICING/METER READINGS

1. Vendor shall supply one (1) monthly invoice summarizing billing for all equipment included in this contract.
2. Invoice submittals to include detailed backup agreeing in total to summary invoice which would include the following by equipment: serial number, model, billing period, meter reading less service copies, location, contact person, price per print, and dollar amount. Meter reads to include copy, print and scan as well as color versus black on machines that produce both, when applicable.
3. Service clicks to be deducted
4. Invoices to be sent no later than the 30 days after receiving the meter readings from LSU MC to: Louisiana State University, Printing Office, Baton Rouge, LA 70803 Attn: Copier Management Program
5. Prior to first billing by awarded vendor, examples of billing are to be provided to LSU Copier Management Administrative personnel for review and approval. Upon approval, actual billing shall be submitted.
6. Monthly meter readings along with service clicks will be provided by the 10th of the following month via fax or email.

MEETINGS

The bidder is to participate in quarterly meetings with LSU CM. LSU CM to present the following data and will expect a plan of action for any problems discussed:

1. Monthly average response time to service calls, listing how many individual calls met expected response time, acceptable, and unacceptable levels.
2. Report of any equipment with more than 3 calls.
3. Report detailing service calls per unit.
4. Report detailing expected volumes versus actual to be used yearly for up and down grading equipment placements.

Attachment I

VENDOR SUBMITTAL REQUIREMENTS

1. BID SUBMITTALS--The following shall be submitted with Bid. **Non-compliance with this requirement shall result in rejection of vendor bid from further consideration.**

- **Appendix A: PRICE SCHEDULE**
- **Appendix B: EQUIPMENT SPECIFICATIONS PROVIDED BY BIDDING VENDOR**

2. ADDITIONAL SUBMITTALS DUE AS BID SUBMITTALS OR WITHIN TWO (2) DAYS OF REQUEST--The following requested information is **desired** at time of bid opening; however, **shall be provided** no later than two (2) days after request by the Office of Purchasing. Untimely submittal of the requirements of this section may result in rejection of vendor bid from further consideration. ***NOTE: Items listed below not applicable to your bid shall clearly be stated as such by the bidding vendor.**

A. Literature for each model of equipment bid in Base bid and Alternates. The literature is to demonstrate compliance with specifications.
B. If Buyers Laboratory Inc. has tested equipment, include a copy of the test results.
C. Manufacturer Certificate stating that service and supply dealer is an authorized dealer for the equipment quoted in response to this solicitation.
D. Written Guarantee of availability of parts and supplies for entire contract period and/or for the length of time copiers are in service under the contract terms.
E. Organizational chart detailing the positions, names and phone numbers of those involved in meeting the requirements of the contract such as ordering supplies, requesting service, billing questions, contract issues, network printing issues, etc.
F. Also required is the name of the MCSE certified network specialist or CN/A+ available to vendor's team for carrying out the terms of the contract.
G. Written specifications for required transparency and labels to be used on bid equipment.
H. List detailing of any specification(s) not met.

3. SUBMITTALS REQUIRED AFTER NOTICE OF AWARD--The following shall be submitted no later than 10 days from Notice of Award by the Office of Purchasing.

A. Complete list of service codes and descriptions .
B. Proof of Insurance & Indemnification per requirements herein.

Appendix B__

EQUIPMENT SPECIFICATIONS PROVIDED BY BIDDING VENDOR

A. REQUIREMENTS OF EQUIPMENT QUOTED ON BASE BID-Bidding vendor shall complete this section to advise Make and Model, Equipment Dimensions and Power

	Make and Model		Equipment Dimensions	Power Requirement
Level 1	_____		_____	_____
Level 2	_____	(1)	_____	_____
Level 3	_____	(1)	_____	_____
Level 4	_____	(1)	_____	_____
Level 5	_____	(1)	_____	_____
Level 6	_____		_____	_____
Level 7	_____		_____	_____

(1)This equipment is to be business color capable

B. REQUIREMENTS OF EQUIPMENT QUOTED ON ALTERNATE BID #1- Bidding vendor shall complete this section to advise Make and Model, Equipment Dimensions and Power

	Make and Model		Equipment Dimensions	Power Requirement
Level 1	_____		_____	_____
Level 2	_____	(1)	_____	_____
Level 3	_____	(1)	_____	_____
Level 4	_____		_____	_____
Level 5	_____		_____	_____
Level 6	_____		_____	_____
Level 7	_____		_____	_____

(1)This equipment is to be business color capable

Appendix B (continued)

C. REQUIREMENTS OF EQUIPMENT QUOTED ON ALTERNATE BID #1- Bidding vendor shall complete this section to advise Make and Model, Equipment Dimensions and Power Requirements

	Make and Model	Equipment Dimensions	Power Requirement
Level 1			
Level 2			
Level 3			
Level 4			
Level 5			
Level 6			
Level 7			

D. REQUIREMENTS OF ADDITIONAL EQUIPMENT FOR BASE BIDS AND ALTERNATES as defined in Section 7.8

Vendor shall supply Make and Model of equipment being quoted.

Equipment/Device	Make	Model
Special Event Equipment		
Book Copier Device		
Fax Attachment		

Exhibit A

HISTORICAL INFORMATION

1. **Volume by the fiscal year**

07/97 through 06/98	**42,185,662**
07/98 through 06/99	**48,623,405**
07/99 through 06/00	**46,768,523**
07/00 through 06/01	**47,504,444**
07/01 through 06/02	**45,672,258**
07/02 through 06/03	**47,119,103**
07/03 through 06/04	**45,407,195**
07/04 through 06/05	**42,662766**
07/05 through 12-05	**18,778,007 ½ year estimated 37,556,014****

**Volume declined in October 05 and November 05 compared to same period in 04. December 05 increased back to normal volume so the estimate if that trend continues would approach 40,000,000. It is assumed that Katrina and the associated budget cuts and uncertainty impacted this volume as it did in our offset and high speed duplicating areas.

2. **Number of copiers added after initial install, upgraded/downgraded, or removed during the prior contract**

Added after initial install:
01-02: 6
02-03: 9
03-04: 11
04-05: 15
05-06

Upgraded/Downgraded: 5 or less
Removals: 5 or less

3. **Average Volume by Level**

Contract Expected Monthly Average Volume per Machine	**Actual Average Monthly Volume per Machine (Based on 4.5 year of volume)***
Level 1 1,000 to 3.000	2,261
Level 2 3,000 to 5,999	4,250
Level 3 6,000 to 9,999	7,764
Level 4 10,000 to 16,999	12,985
Level 5 17,000 to 34,999	22,836
Level 6 35,000 to 59,999	40,932
Level 7 60,000 and up	105,010

***Actual adjusted to new levels**

Exhibit B

TESTING REQUIREMENTS DOCUMENT SUITE

NOTE: Provided on CD to vendors receiving a mailed packet of this solicitation

LAPAC vendors are to print down the document suite as it is posted herein.

Storage Management: An Overview

A Windows administrator tasked with storage management today faces a plethora of challenges. Due to the rapid growth of e-business and new regulatory compliance requirements, storage requirements are typically growing at a rate of 60-100% per year. Administrators are expected to protect mission critical data, ensure the data is available 24x7, and support complex applications that are increasingly demanding of storage resources.

Adding to the current situation for Windows administrators, many companies still struggle to minimize the shortcomings of Direct Attached Storage (DAS). With devices locally attached to a specific server or in the server enclosure itself, performing day-to-day management tasks can become extremely complicated. For example, a routine data backup could require complex procedures if the data is distributed amongst many servers and PCs – and only accessible only through the system to which it is attached. As a given server outgrows its storage capacity, new storage for that server has to be acquired and attached—even if there are other servers in the organization with plenty of storage space available. Since many applications are not storage-aware, and require manual configuration to utilize available storage resources, managing data for backup and transport can be a difficult and inefficient process.

Many companies that implemented networked storage solutions in an attempt to avoid the inefficiencies of DAS have struggled with the complexity and support costs of those solutions. For nearly every networked storage solution on the market, there is a separate vendor-specific disk management application. Management consoles are not standardized, making training and usage unnecessarily difficult. And the burden of managing these complicated storage environments has fallen on the shoulders of administrators.

With the introduction of a storage area network (SAN), storage systems moved to a separate network which can be accessed through servers that have connections to both the regular network as well as the SAN. Backing up and transferring data can be done directly, without tying up server processing resources. Most importantly, storage is pooled and resources can be shared. The problem of underutilization of storage resources associated with DAS is dramatically reduced with SANs.

SANs are not the only form of networked storage employed within organizations today. With the appropriate tools, multiple networked-attached storage (NAS) devices on a LAN can be pooled into a single shared storage repository. This gives administrators the benefits of centralization without the technical complexity of managing a separate storage network or switching fabric.

The Microsoft Windows Server platform can help address the needs of Windows administrators for storage management in many ways. The following sections of this white paper will explore the problems faced by administrators, the broad scope of storage management, the history of Microsoft's support of those needs, and Microsoft's newest tools to help storage administrators: File Server Resource Manager and Storage Manager for SANs.

Second Edition
Spring 2003

Birth through Preschool

Proven ideas from research for **parents**

A Child Becomes a Reader

BIRTH THROUGH PRESCHOOL

Proven ideas from research for parents

A Child Becomes a Reader

Birth Through Preschool

Produced by RMC Research Corporation, Portsmouth, New Hampshire

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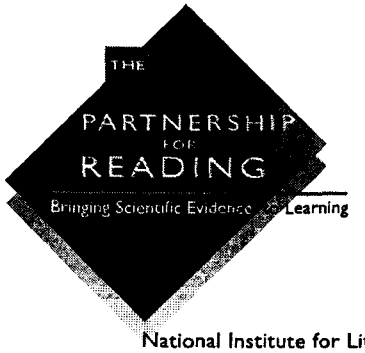


National Institute for Literacy

National Institute of Child Health
and Human Development

U.S. Department of Education

U.S. Department of Health and Human Services

Second Edition
Spring 2003

This publication was produced under National Institute for Literacy Contract No. ED-00CO-0093 with RMC Research Corporation. Sandra Baxter served as the contracting officer's technical representative. The views expressed herein do not necessarily represent the policies of the National Institute for Literacy. No official endorsement by the National Institute for Literacy of any product, commodity, service, or enterprise in this publication is intended or should be inferred.

The National Institute for Literacy

Sandra Baxter
Interim Executive Director

Lynn Reddy
Communications Director

Spring 2003

To order copies of this booklet, contact the National Institute for Literacy at EdPubs, PO Box 1398, Jessup, MD 20794-1398. Call 800-228-8813 or email edpubs@inet.ed.gov. This booklet can also be downloaded at The Partnership for Reading web site, www.nifl.gov/partnershipforreading.

The National Institute for Literacy, an independent federal organization, supports the development of high quality state, regional, and national literacy services so that all Americans can develop the literacy skills they need to succeed at work, at home, and in the community.

The Partnership for Reading, a project administered by the National Institute for Literacy, is a collaborative effort of the National Institute for Literacy, the National Institute of Child Health and Human Development, the U.S. Department of Education, and the U.S. Department of Health and Human Services to make evidence-based reading research available to educators, parents, policy makers, and others with an interest in helping all people learn to read well.

The Partnership for Reading acknowledges editorial support from C. Ralph Adler and design support from Diane Draper, both of RMC Research Corporation.

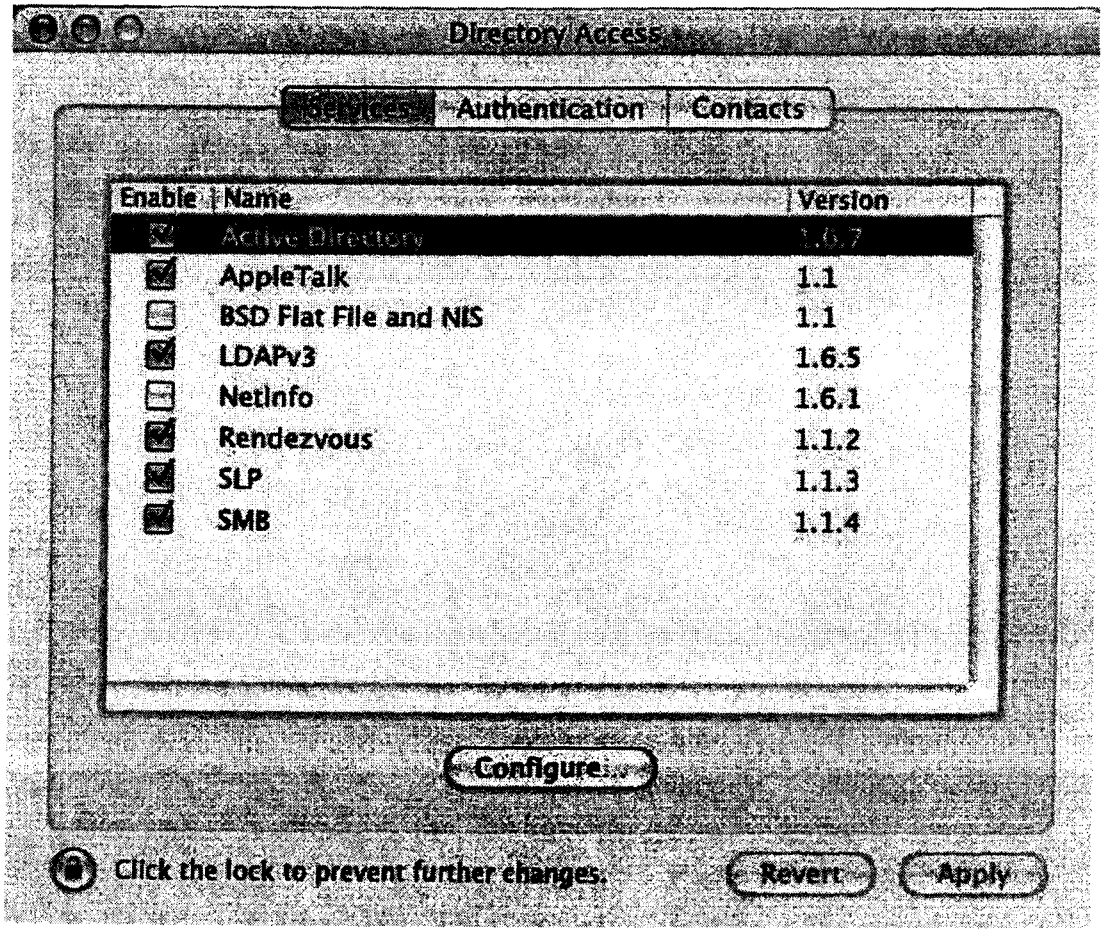
Configuration of OS X (10.3x) to Active Directory

Note: Before starting, ensure:

- That you have configured your client to use a network time server through "System Preferences" » "Date and Time" » "Set Date & Time automatically"

Graphic User Interface configuration

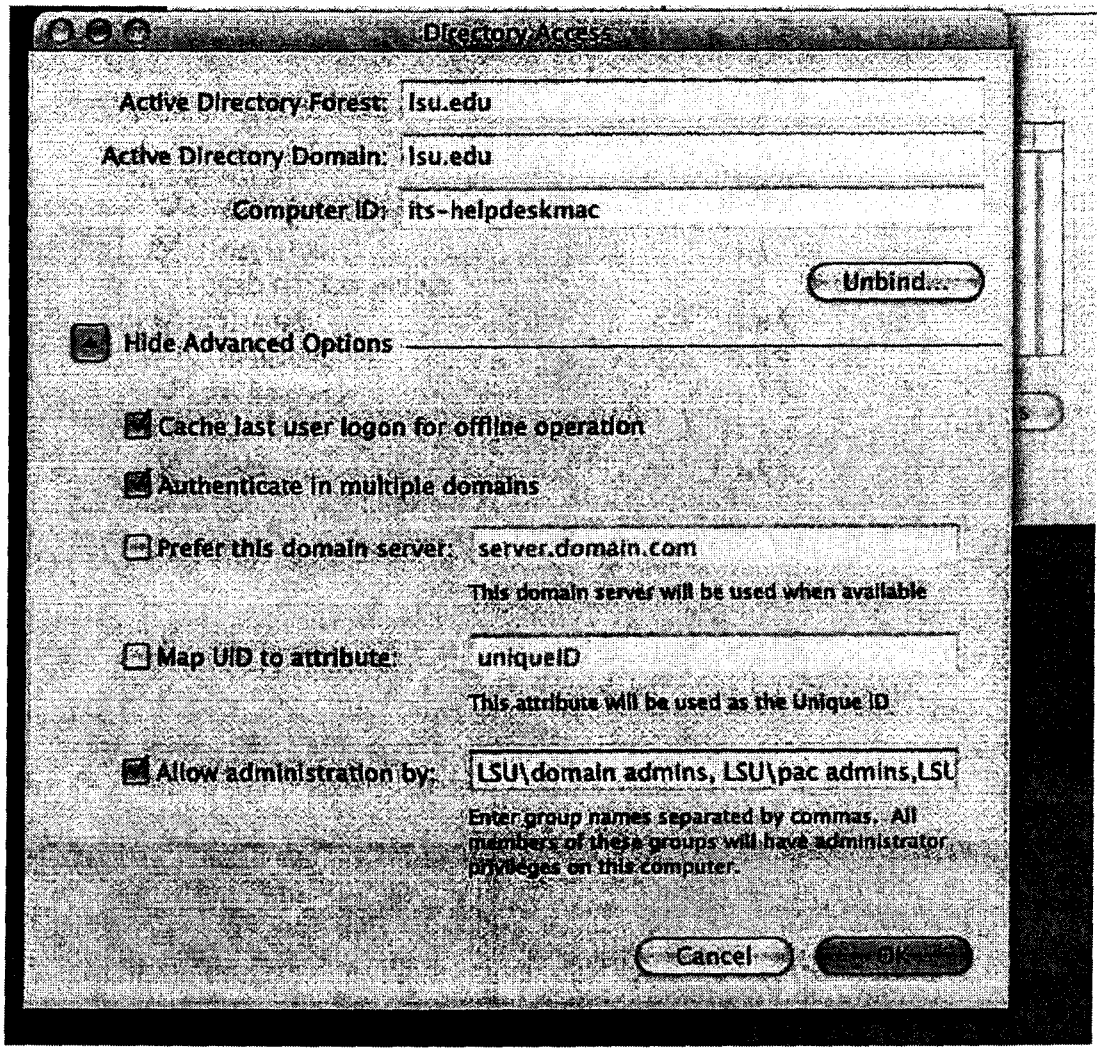
Active Directory authentication is configured using the Directory Access program in the Applications / Utilities folder.



Highlight the "Active Directory" line and click "Configure".

Click "Show Advanced Options" to display a sheet similar to the following, though missing the configuration details which you will need to enter. Be sure to set the following options

- Active Directory Forest – lsu.edu
- Active Directory Domain – lsu.edu
- Computer ID - *your computer name*
- Select "Authenticate in multiple domains"
- Select "Allow administration by" and enter whatever groups needed.

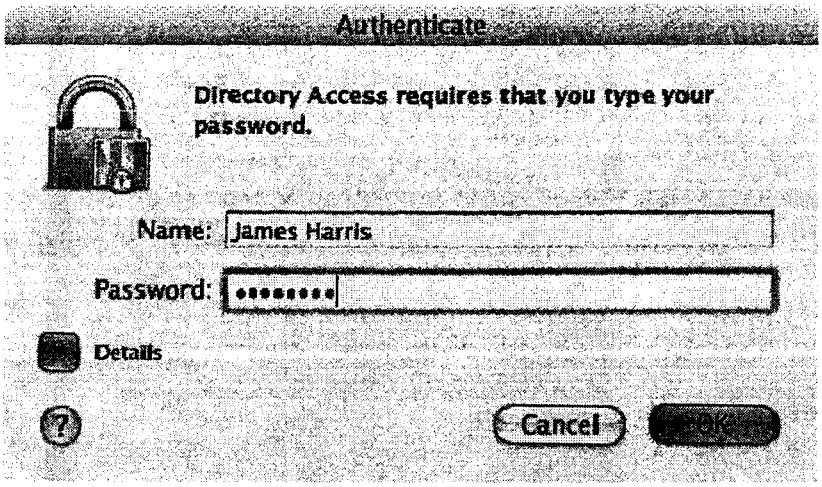


Once you have entered these details, click "Bind" to join the Active Directory.

You will need to enter:

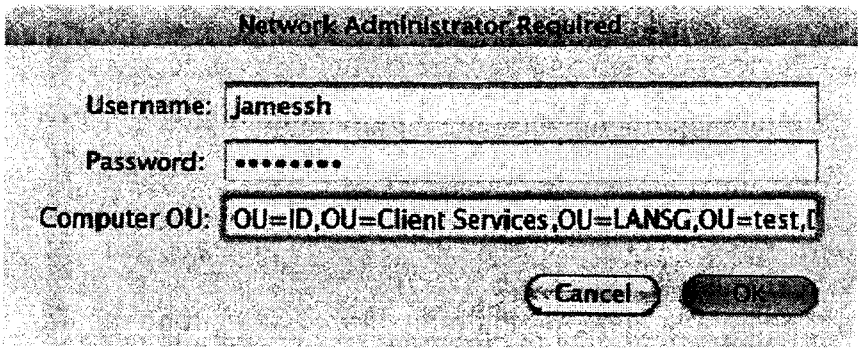
- a OS X.3 username and password account with administrator rights
- an Active Directory username and password with privileges to join computers to the Active Directory

- the location of the computer within the Active Directory

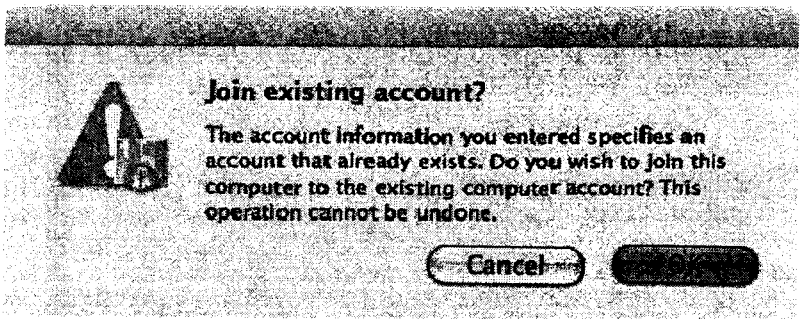


The default Active Directory location of `OU=Computers,DC=lsu,DC=edu` will not work and you will need to specify a different location. An example location is as follows:

```
OU=Departments and Organizations,OU=GRAP,OU=Computers,DC=lsu,DC=edu
```

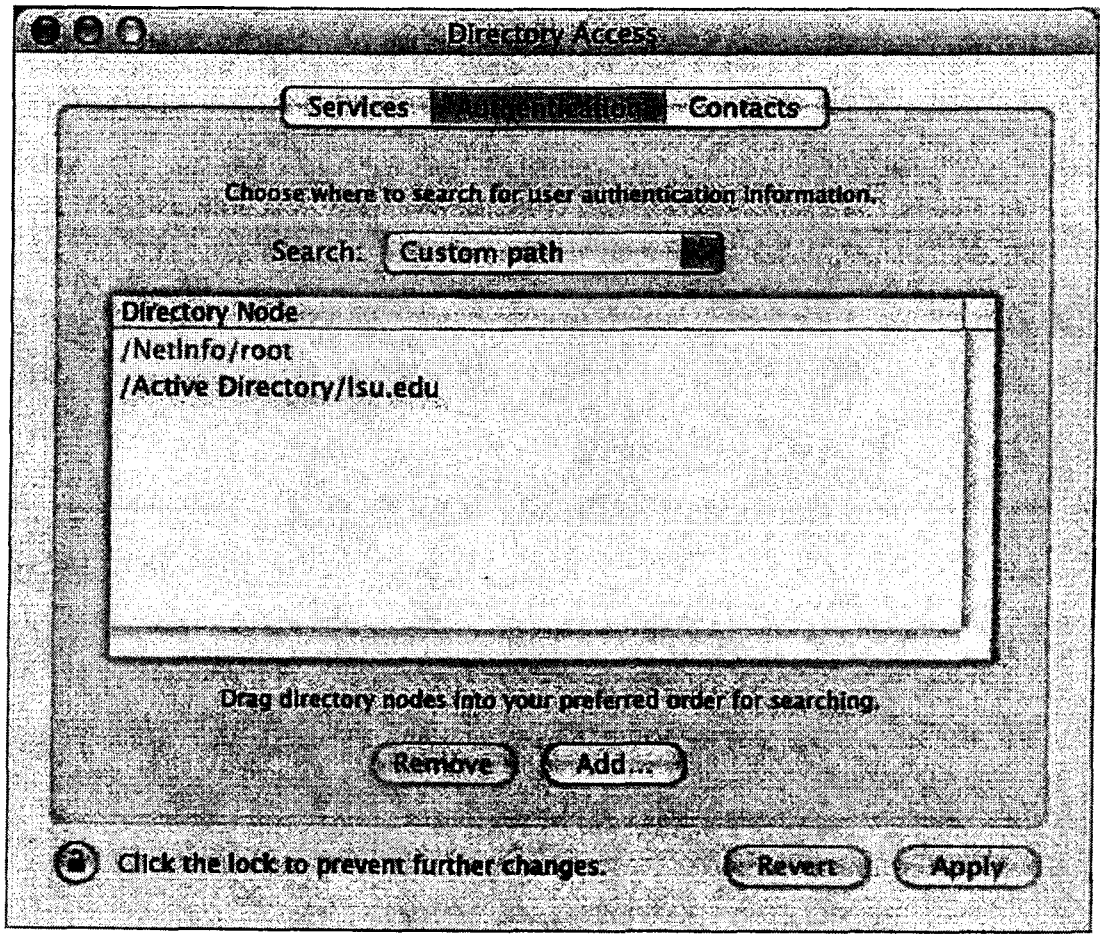


If you get an error that you have insufficient privileges to join the Active Directory, it may be related to the group permissions issue discussed below. Otherwise you should see the following.



Click "OK" and your computer has joined the Active Directory. You can leave the Active Directory by clicking "Unbind".

The final step is to add the Active Directory to OS X.3's authentication method list. This is done by selecting the "Authentication" tab and adding a "Custom path".



Users will now be able to logon using their Active Directory credentials and connect to file servers without having to enter their username and password a second time. Note that the OS X.3 graphical configuration does not support the use of network home directories - users will be given a local home directory.

You should be sure to disable automatic login and enable automatic logout on computers on which Active Directory based authentication is used. This can be accomplished under System Preferences > Security.

Take Content and Applications Mobile by Using Adobe GoLive CS2

TABLE OF CONTENTS

Mobile developer benefits of Adobe GoLive CS2

As the number of software-driven mobile phones grows exponentially, the demand for mobile content also increases. Tremendous opportunity exists to enhance and evolve the role of mobile content. Adobe® GoLive® CS2 extends the traditional strength of Adobe in print and web publishing to the mobile world. Using globally adopted open standards, GoLive CS2 enables you to make creating mobile content a manageable step; by leveraging existing content elements, you can create mobile content more easily, while maintaining a consistent look and feel.

This white paper offers an overview of the opportunity in mobile development and the role of Adobe GoLive CS2 in helping to create mobile content that will let you capitalize on this growing opportunity.

After you finish reading this white paper, you will understand the following concepts:

- The benefits of using Adobe GoLive CS2
- The mobile landscape and the various roles of the players in the mobile market, as well as how they relate to each other
- The mobile development environment
- The importance of open standards in mobile development
- How the features of Adobe GoLive CS2 address the specific needs of the mobile development environment
- The future direction of the mobile market
- Where you can find specific mobile development resources online

This document is written for the following people:

- Developers focusing on the mobile environment who would like to better understand the mobile-specific features of Adobe GoLive CS2
- Developers focusing on the wired web who are interested in understanding more about the market for mobile content and applications, and how GoLive CS2 can be used for mobile development
- Other decision-makers who need to understand more about the mobile content and application market, as well as the role of GoLive CS2 in mobile development

Adobe

A museum tour guide in your pocket

After much planning, you are taking a vacation in Paris to see the work of your favorite artist—the famous E. Topliffe—at a special exhibition being held at the Louvre. You enter the museum, and while waiting in line, realize that according to the poster near the ticket desk, you've just missed that morning's guided tour. The ticket agent confirms this suspicion, gives you a ticket, and then asks if you have a browser-enabled mobile phone. Wondering why, you cautiously respond that you do have a browser-enabled mobile phone with you. The ticket agent says, "Wonderful, you are in luck! We have a new mobile virtual tour guide. Are you interested in purchasing access during your stay? It is 5 euros and can be used for seven days before the password expires." After ensuring that you have a handsfree earpiece with you, the ticket agent asks for your phone number and then sends a bookmark to your device via SMS (Short Message Service).

Once inside the Louvre, you open the SMS and open the browser by the bookmark. The bookmarked URL includes the site address of the tour guide as well as an argument that automatically signs you in with your user name and password. You select the E. Topliffe exhibition, and a map of the museum directs you to the room housing the exhibition. As you walk through the various rooms, you select the appropriate link for each one, and see yourself as a small dot on the floor plan shown on the screen. Once you arrive, you can open a second map that shows each work's location in the exhibition. An additional Info menu item also takes you to a description of the exhibition and a brief overview of wood and mixed media, as well as the post-constructivism movement. As you move from painting to painting, you can use your phone to get more background information on each piece, as well as recommendations of similar works. Sometimes the information is a short video of an art historian; other times, it is a copy of a letter the artist wrote to his agent. When available, the information includes posters and other reproductions for sale in the gift shop. Selecting a favorite relief opens a virtual gift shop site that enables you to enter your credit card number and purchase a poster that is mailed to your home address.

The exhibition is organized chronologically, but you are more interested in the theme of excavation in E. Topliffe's work, and the personal tour guide application suggests various works that focus on this theme and marks their locations on the map. After a few hours of browsing, you find that you are hungry. The main menu of the personal tour guide gives you a listing of nearby restaurants, with links to their menus. You leave the museum satisfied and feeling as if you have spent several hours with an art historian with a Ph.D. in the works of E. Topliffe.

The relief, "red," is one of E.Topliffe's works currently on display at the Louvre's special exhibition on the enigmatic British artist. His mixed media reliefs have been shown at the Carabelle Contemporary Art Center in Florida and at the Hackney Art Gallery and the Galleria Tata, both in London.

Introducing Adobe GoLive CS2

All the technology to create a personal museum tour guide exists today. One key tool for taking information and applications mobile is Adobe GoLive CS2. Adobe GoLive has been a popular tool for creating websites, and in the latest version of the product, Adobe delivers key functionality that brings the best of GoLive to mobile content. GoLive CS2 provides the following abilities to developers:

- Leverage the flexibility of the latest open mobile standards because of built-in support for standards such as Extensible HTML (XHTML), Cascading Style Sheets (CSS), Syncronized Multimedia Integration Language (SMIL), and scalable vector graphics (SVG) Tiny (SVG-t).
- Reuse existing design elements more efficiently because of tight integration between GoLive CS2 and other components in the Adobe Creative Suite, including Adobe Photoshop®, Illustrator®, and InDesign® software.
- Extend out-of-the-box functionality through the GoLive software development kit (SDK) for maximum adaptability and productivity.

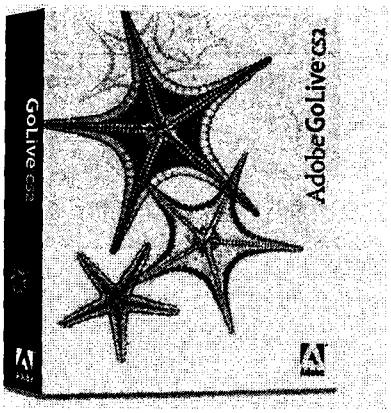
GoLive CS2 gives you one visual design and development environment for both wired-web applications and mobile content applications.

Leverage the flexibility of open standards

One concern about going mobile is identifying the best way for transforming nonmobile applications and data to mobile formats. Enterprises fear investing time, energy, and resources just to discover that they somehow invested in the wrong technology and are now locked into a proprietary technology and toolset that no one wants, uses, or supports. Open standards solve this problem and avoid the need to invest in proprietary technologies that may not become prevalent. Open standards let you develop solutions that work smoothly across multiple vendors and products, and let you profit regardless of which technology ultimately dominates. Adobe GoLive CS2 supports all the major open standards, including native support for standards from the World Wide Web Consortium (W3C®), Open Mobile Alliance (OMA), and 3rd Generation Project Partnership (3GPP), so you can be confident that the mobile content you create will integrate tightly and work on the majority of mobile clients. Once you have created your open-standards-based code, GoLive CS2 can validate your code syntax.

Reuse existing design elements

While creation can be invigorating and rewarding, *re*-creation is significantly less thrilling. However, GoLive CS2 enables you to leverage existing web content you have worked with in GoLive, print content you have formatted in InDesign, and print graphic design elements from other Adobe applications, such as Illustrator or Photoshop. Previously, mobile incarnations of web or print content required you to re-create design elements in mobile-specific formats, such as WBMP, or recode huge swaths of Hypertext Markup Language (HTML) into another markup language. More recently, mobile browsers have evolved and can support some web formats, such as HTML, JPEG, and GIF. This evolution, combined with the ability to reuse your existing source material in GoLive CS2, helps you save time and energy, as well as maintain a consistent look and feel—a critical element of successful branding and image management.



Adobe GoLive CS2

Extend out-of-the-box functionality

GoLive CS2 also enables you, via the GoLive SDK, to create extensions or plug-ins that connect GoLive to other applications, and extend the out-of-the-box functionality of GoLive CS2. The Adobe website hosts a catalog of existing extensions that have already been created; many of these extensions are freely available (see share.studio.adobe.com). If you can't find the extension or plug-in you need, you can use the Extensible Markup Language (XML) and ECMAScript-based environment of the GoLive SDK to write your own. By offering a free GoLive SDK as well as a catalog of existing extensions, Adobe has created an application that supports emerging standards and can be tailored to your specific needs.

The mobile market

The flexibility of the Adobe GoLive CS2 open-standards-based approach, the ability to reuse existing design elements, and the extensibility of the GoLive SDK are features intended to meet the needs of mobile developers. Before beginning to create mobile applications or content, however, you need more than just the right tools. To be successful in developing mobile applications or content, you need to consider the trends driving mobility, as well as the specific needs, preferences, and desired features of your future users.

A WORD ABOUT OPEN STANDARDS

GoLive not only supports open standards, but, in fact, has been developed with open standards as a guiding principle. There are several practical reasons for choosing, supporting, and valuing open standards.

Promoting choice

Open standards have been developed by organizations that comprise many technology vendors. As a result, multiple vendors are free to provide solutions based on those standards, giving you the freedom to choose the products that meet your specific needs. Each specific solution will work in conjunction with any other solution that uses the same open standard. Open standards mean you never tie your application's fate to the success or failure of the vendor of a proprietary technology. Furthermore, when developing for an open standard, you can choose between a number of integrated development environments and select one with the right features for your needs. The ability to assemble the best solutions, rather than being limited to one proprietary approach, is a hallmark of the open standards movement.

Providing lower cost solutions

Because a variety of vendors sell open standards solutions, competition leads to lower technology costs. Cost savings are not limited to just tools, but extend to lower cost back-end servers, as well as much lower switching costs.

Facilitating interoperability

When applications are created through open standards, they can interact with other open-standards-based applications in a predictable way. Without open standards, integrating and interacting with other applications requires product- and vendor-specific customization. Open-standards-based technologies remove the need for extensive customization and let you focus on building your own application instead of trying to work with someone else's solution. Without open standards for the web, any new browser version would require every single web page to be completely recoded for the new browser to recognize it. Open standards have enabled the web to evolve organically, and each site can adopt new technologies at its own pace. Open standards in the mobile world will achieve the same end.

Key open standards groups

The Open Mobile Alliance (www.openmobilealliance.org) defines the open standards most relevant to mobile development. The World Wide Web Consortium (www.w3c.org) is a broader web-oriented open standards organization that intersects with the work of the OMA in the area of markup and presentation languagues for both the wired web and mobile web. Another standards organization is the 3rd Generation Project Partnership (www.3GPP.org), which creates and promotes all of the network and radio standards associated with Global System for Mobile Communications (GSM)—a digital cellular network technology. The Liberty Alliance (www.projectliberty.org) is working on the technical, business, and policy issues surrounding identity and web services. Many key mobile technology companies, such as HP, Nokia, Vodafone, Sun Microsystems, IBM, Intel, and Oracle, belong to all four organizations. These organizations are not competing standards bodies; the areas of interest for all four of these organizations are fairly distinct, although interrelated.

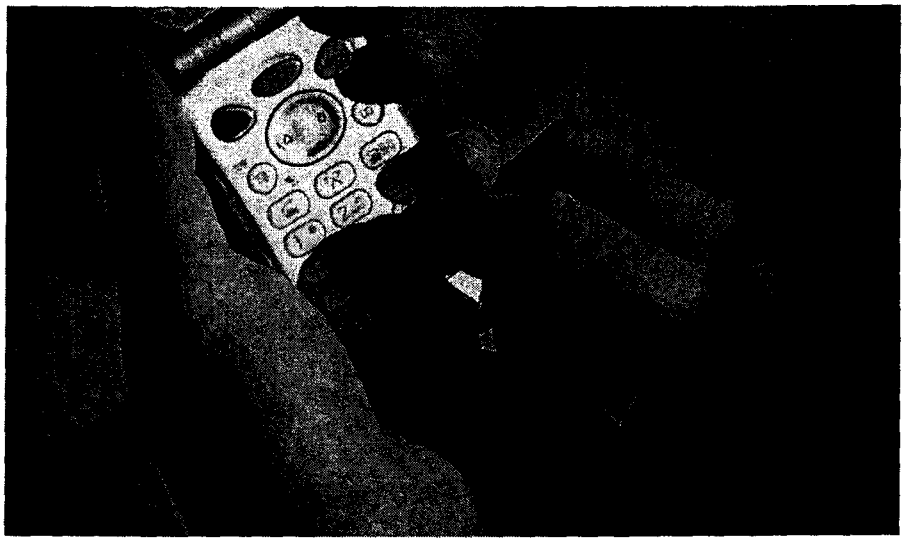
Mobile trends

A few key trends are driving mobility:

- **Increasing mobility expectations.** Increasing expectations affect every market. We've become accustomed to accessing e-mail, databases, and the Internet from work, from home, from the airport, from a hotel, and even from our favorite coffee shop. The increasing penetration has led to higher expectations of availability. True unavailability is becoming increasingly rare.
- **Productivity, competition, and turnaround pressures.** Organizations and individuals want to maximize daily productivity and decrease turnaround times. There are fewer new customers, so increasing service levels to create loyalty is critical. Mobile access to applications, data, and messaging can increase employee productivity and nurture customer loyalty.
- **Access to data, regardless of network.** Traveling to another country, or sometimes even another town, can present computer connectivity problems. Some hotels use digital phone systems that frustrate users of traditional dial-up technology, and even in-room Ethernet access can present problems when users attempt to send e-mail or gain virtual private network (VPN) access. Access to wireless data via mobile phones, however, will work over any network, anywhere in the world.

Mobile users

When many of us think of our mobile phones, we think of the kinds of tasks we currently use them for, as individual consumers. Consumers are sending SMS and Multimedia Messaging Service (MMS) messages, playing games, downloading ring tones and wallpaper, and, of course, making voice calls. Many are using the personal information management (PIM) features, such as address book and calendar applications. Some are browsing websites and taking and sending pictures with an integrated camera. In short, consumers want to have access to critical personal data, as well as entertainment.



Users are doing more than just talking on the latest, data-services-enabled mobile devices. Innovations in screen display quality, processing power, and battery life have created a new market for mobile content.

Some companies that sell consumer products view mobile content as a marketing opportunity. For example, users who choose to receive updates and special offers from their favorite brands can also choose to have MMS messages sent to their phones. Opt-in MMS messaging then allows companies to push information directly to consumers, including personalized greetings, product availability dates, animations of their products in action, and special coupons. Market researcher Forrester Research said that 32% of the Western and Eastern European companies that participated in a recent survey about marketing methods have adopted SMS for their marketing campaigns. Furthermore, in 2004, these companies' spending on mobile campaigns was higher than spending on traditional e-mail campaigns.

Media companies are also striving to capture mindshare and see mobile content as a key tactic for promoting their brands. Users can subscribe to services, often through their wireless operators, to receive push notifications about news, weather, traffic, sports, and entertainment.

Savvy enterprises, on the other hand, look at mobility and see a world of efficiency and responsiveness. Researcher Strategy Analytics estimated that by the end of 2004, there would be about 421 million business wireless users worldwide, growing to 537 million by the close of 2009. Enterprises want to keep their data close to their employees, and their employees close to their customers. An article in *CIO Magazine* ("The Payoff of Wireless IT Investments," February 2, 2004) reported on the primary business reasons that U.S. information technology executives cited for implementing wireless technology. Seventy-three percent cited increases in productivity, 62% cited increases in efficiency, and 60% cited demand and interest from their internal users. A study conducted by the University of Southern California (Center for Telecom Management at the University of Southern California, *The Mobile Wireless Outlook Report: What Lies Ahead: Customers' Requirements in Demanding Times*, January 2003) projected the use of wireless access in corporate environments. Messaging was by far the most highly rated activity at 43%, while sales force automation was close behind with a 38% importance rating. The rating for intranet access was 34%, followed by a 31% tie between logistics/transport coordination and customer relationship management (CRM). The remaining percentages were inventory management (30%), supply chain management (25%) and enterprise resource planning (20%).

Mobile enterprise applications bring back-end systems and critical data into the field to decrease turnaround time and increase profit margins.

Several industries, including the following, are particularly well suited to reap the benefits of mobile technology:

- **Field service.** Mobile solutions are ideal for providing workers in the field with information, as well as enabling them to communicate with the office without having to physically leave their locations. For example, service technicians can now access information about equipment, look up inventory status at different locations, place orders, and update tickets, all while on site. Field service workers can then view animations that show how to replace a part or dismantle a machine, or even identify a given part based on an image of that part, rather than by the part's stock keeping unit (SKU).
- **Healthcare.** Healthcare is slowly starting to mobilize certain processes. Patient records must be constantly updated to ensure proper treatment of patients, especially when multiple providers are caring for a single patient during a hospital stay. Using mobile devices to quickly update and retrieve the master patient records, caregivers can ensure that those records are accurate and secure. Additionally, having an electronic record makes consultation with remote specialists and primary care physicians much easier, as well as avoiding issues caused by difficult-

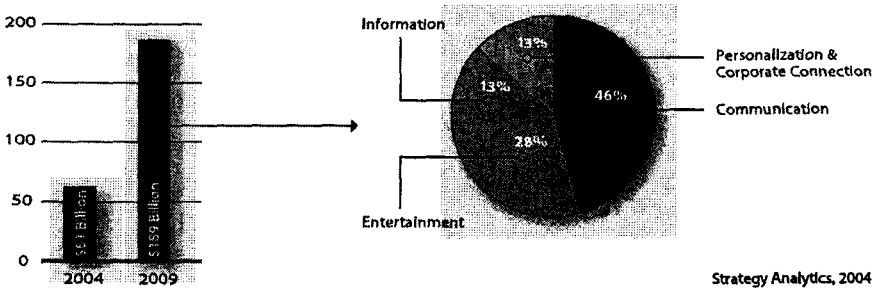
to-decipher handwriting. Caregivers can also use pharmaceutical tools to reference the latest drug choices and protect patients from potentially harmful drug combinations.

- **Construction.** A loud, dusty, and ever-changing work site does not always make the best place for toting large references or delicate documents. By using rugged mobile devices to communicate with workers and send vital information from the field office, construction projects can progress more quickly and with fewer mistakes.

The mobile market opportunity

The total mobile market is big and growing. According to researcher IDC, there were 1.3 billion wireless subscribers (individual consumers and business users combined) in 2003, and that number is projected to rise to 2 billion by the end of 2008. All of these subscribers need devices to access their wireless services, and IDC believes that 539 million mobile phones were shipped in 2003. Annual mobile phone shipments are predicted to rise to 945 million by the end of 2008. (These statistics are from IDC, *Worldwide Mobile Phone 2004-2008 Forecast Update*, IDC #31640, August 2004.)

Mobile Data Revenue



Mobile data revenue is projected to increase more than 200% between 2004 and 2009, with communication and entertainment applications responsible for the largest portion of the 2009 market.

The emerging subsection of the mobile handset market is the smartphone, or converged mobile device, category. These devices are capable of running native software applications and, in addition to voice capabilities, also offer personal information management features. Converged mobile devices, according to IDC, shipped 9.4 million units worldwide in 2003, and this figure is expected to jump to about 94 million by the close of 2008 (*Worldwide Smart Handheld Device 2004-2008 Forecast Update: First Quarter Triggers Downward Revision*, IDC #31554, August 2004). While smartphones make up a relatively small portion of the global market, these complex, data-driven devices are expected to penetrate into the enterprise market.

When considering mobile applications and mobile content, however, remember that dynamic mobile content is not limited to the relatively small smartphone segment. Any phone with a browser and the right service plan can access rich mobile content anywhere today, and it is this expanded segment of the market (often referred to as the feature phone segment) that rich mobile content targets. In fact, market watcher Strategy Analytics believed that revenues from mobile data would reach $61 billion by the end of 2004 and grow to just over $189 billion in 2009. This 2009 revenue estimate breaks down into communication (46%), entertainment (28%), and information (13%), with the remainder falling into the category of personalization and corporate connection, according to Strategy Analytics.

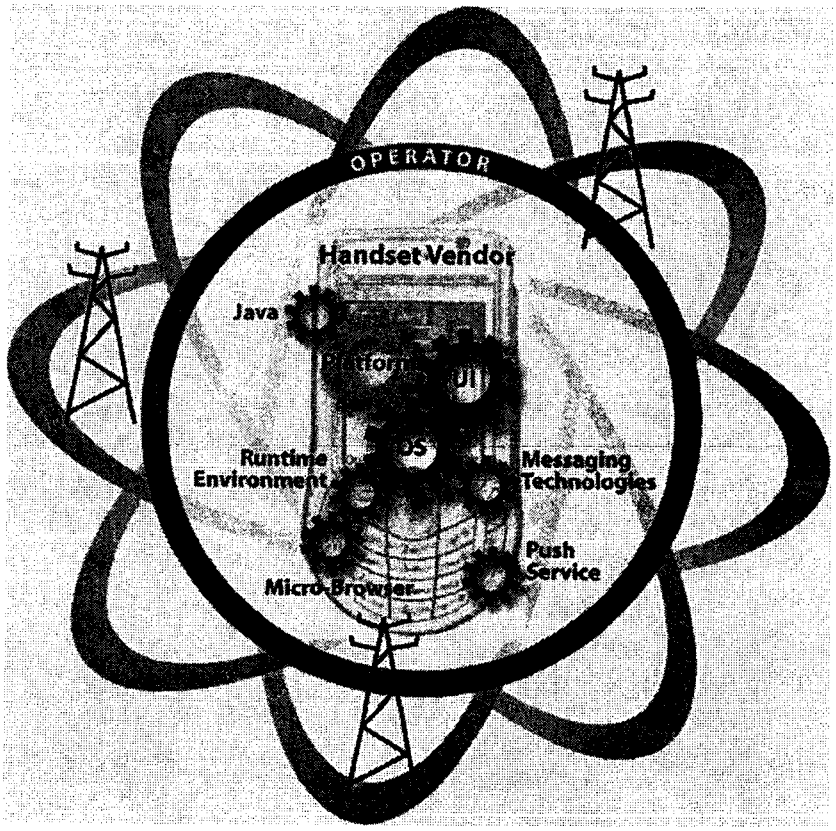
The mobile market, while vast and global, is not monolithic. Mobile technology has developed differently in each region, and while these regional differences are shrinking, they are doing so slowly and are not likely to disappear completely. For example, while the U.S. has traditionally been at the forefront of adopting new technology, in the mobile arena it lags Europe somewhat and Asia more dramatically.

Adoption is not the only area of regional variation. Europe—and to a lesser degree, the U.S.—have tended to favor a more open-standards-oriented approach to mobile technology. Asia (more specifically, Japan), on the other hand, has traditionally adopted more proprietary solutions, although today Asia is moving more toward a combination of open standards and proprietary solutions.

The open standards verus proprietary solutions divide is expected to take longer to resolve. When developing mobile applications, developers must be aware of these regional quirks and the impact that they may have on mobile architecture and development.

The mobile landscape

Once you understand the key trends driving mobility, the various users and their specific needs, and the scale of the potential market that you are targeting, you may seem ready to start building your solution. The mobile market, however, is complex and highly interrelated. To ensure that your application and content will be available to your target audience and will function on the highest number of potential devices, you must have a working knowledge of the role of each player in the mobile industry ecosystem.



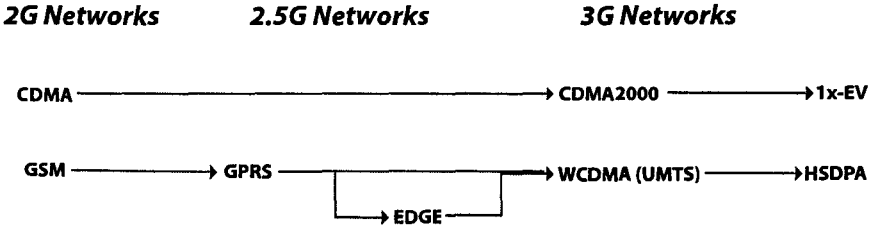
At each stage of the mobile industry ecosystem, vendors are making choices about which of the other players they will work with, and which hardware, software, and technologies they wish to support.

Operators

Typically, to use a mobile phone, a user must first select a mobile service provider, such as Vodafone, Verizon, or Orange. Some large operators, like Vodafone, exert a significant amount of power over handset specifications. In Europe, to compete more effectively against a market giant like Vodafone, some other operators, including T-Mobile, Orange, Telefonica, and TIM of Italy, have formed a group called FreeMove alliance (www.freemovealliance.com). The purpose of this group is to wield a larger collective influence over handset manufacturers, and in part to balance the power of Vodafone. Mobile operators also exercise a huge amount of influence in deciding which handsets are available for purchase at their stores as well as which ones are offered for free or at a deep discount as contract signing incentives.

The first decision-making criterion for handset selection is compatibility with the type of network the operator runs. Currently, two different generations of network technology are in active use: second-generation (2G) networks and third-generation (3G) networks. Outside Japan, 2G networks are based on either Code Division Multiple Access (CDMA) or Global System for Mobile Communications (GSM). GSM has been enhanced with additional data services called 2.5G technologies: General Packet Radio Services (GPRS), which includes download speeds of 171 kbps, and Enhanced Data Rates for GSM Evolution (EDGE), which triples the download

speed of GPRS. Almost all GSM operators have added GPRS services; a smaller number have adopted EDGE, opting instead to move directly to 3G networks. Operators running CDMA are primarily located in Asia-Pacific and the Americas, including Sprint, Verizon, and Korea Telecom Freetel. Examples of operators using GSM plus GPRS are Vodafone, Telefonica Moviles, and China Mobile, while operators using GSM plus EDGE include Cingular, Orange, TIM, T-Mobile, and Hong Kong CSL.



The two main paths of progression from 2G networks to 3G networks.

3G networks have data rates of 384 kbps or more and are based on CDMA2000 or Wideband CDMA (WCDMA), which is often—and sometimes incorrectly—referred to as Universal Mobile Telephone System (UMTS). High Speed Downlink Packet Access (HSDPA) will increase data download speeds for WCDMA, much as EDGE has for GSM networks. CDMA2000 1xEV will likewise increase data transfer rates for CDMA2000. 3G's higher bandwidth enables the inclusion of rich media applications, such as video conferencing and streaming video. Much like GSM, WCDMA dominates much of the European market. Operators using WCDMA include NTT DoCoMo, Hutchinson's "3", Sonera and Mobilkom. KDDI, Vesper, SK Telecom, and Verizon are some of the operators using CDMA2000.

Radio frequency (for example, 1900 MHz and 900 MHz) is another attribute that differs from region to region and, occasionally, from operator to operator. T-MobileUSA, for example, uses only a 1900 MHz frequency, while Cingular uses 1900 MHz and 850 MHz frequencies.

For mobile content developers, network differences have a minimal impact. The key issue is that higher bandwidth means increased demand and better performance for media-rich applications, so services requiring features such as video streaming are best suited for markets with 3G networks.

Once network compatibility has been established, operators offer phones that enable them to reach specific demographics. The kind of phone that will appeal to a teenage girl is less likely to be attractive to her accountant father—and operators seek both demographics.

Like any other business, operators are interested in finding ways to make the products and services they offer unique, as a way of differentiating themselves in the market. Choice of handset operating system, platform, and natively supported technologies is one area of differentiation. Another key area is mobile content. Virtually all operators offer a default mobile application portal and provide catalogs of applications and mobile websites supported on their phones and networks. Every operator hopes that users will become so attached to its brand of services that users will be less likely to switch to a competing operator. In terms of getting a mobile application to market, operators overwhelmingly represent the largest channel.

Handset vendors

Next in the technology-influencing chain are handset vendors, such as Nokia, SonyEricsson, Samsung, and Motorola. Handset vendors invest tremendous amounts of research and development funds in creating phones designed to appeal to various demographics. While each handset vendor segments the market slightly differently, from a high-level perspective, these demographics include youth/teenagers, basic (predominantly voice) users, data-using business users, and early adopters of new features and technologies. Handset vendors also select which operating systems and platforms they will use, often on a handset-by-handset basis. For example, Nokia's low-end phones include Nokia's proprietary operating system, while the company's smartphones include the Symbian OS™-based Series 60 and 80 platforms.

Operating system vendors

Operating systems act as the traffic system of the device, determining which processes each piece of hardware or software can perform. Operating systems are arguably the biggest battleground in the smartphone space, with vendors such as Symbian, Microsoft, and Palmsource fighting for market share. Just as with personal computers, operating system selection dictates what other technologies or software can coexist on the device. Some operating systems are proprietary systems, often owned by handset vendors, while others, such as Symbian OS, are licensed to multiple handset manufacturers. The majority of devices shipping today feature operating systems developed by the handset vendor; however, the percentage of devices offering licensed operating systems, such as Symbian OS, is growing steadily.

Platform vendors

As we look at the other components that make a mobile device function, the delineations and definitions become increasingly blurry because each vendor approaches the market slightly differently. All platforms include an operating system and provide a native runtime environment (as opposed to a separate, self-contained runtime environment like Java). Often, platforms provide additional functionality, such as application programming interfaces (APIs) for cameras or messaging capabilities. Some platforms, like Microsoft's Windows® Powered Smartphone platform, come with a very specific user interface (UI); others, like Nokia's popular Series 60 and Symbian's UIQ platform, provide some core UI elements, but provide for a high degree of UI customization to address a number of form factors. Both platforms, however, run in conjunction with the popular Symbian operating system. Microsoft offers two mobile platforms: the more handheld-device-oriented Pocket PC platform, oriented toward handheld devices, and the phone-specific Smartphone platform.

Technology-enabling application vendors

Technology-enabling applications work in conjunction with the platform and use resources at all levels of the technology on a device. Technology enablers provide additional functionality not offered elsewhere. Some of the most popular are runtime environments, microbrowsers, messaging clients, graphics engines, and audio engines, as described in the following paragraphs:

- **Runtime environments.** Runtime environments provide an application execution environment for various non-native programming languages, such as Java or Visual Basic. By adding a runtime environment, you create a space to run applications written in languages that the hardware, operating system, or platform does not support. Sun and IBM produce runtime environments for Java, while AppForge makes a runtime environment for Visual Basic.
- **Microbrowsers.** Microbrowsers are applications that render markup languages and related data. Just like Microsoft's Internet Explorer, Mozilla Firefox, or Opera enable users to see web content on a personal computer, microbrowsers let users see mobile content on their phones or other mobile devices. Microbrowser vendors include Obigo, Openwave, Access Systems, and Opera.
- **Messaging clients.** Messaging clients let mobile users send, receive, view, and edit messages, including SMS, MMS, and e-mail. Some popular messaging client vendors include Obigo, Openwave, and Access Systems.
- **Graphics and audio engines.** Graphics and audio engines provide the rendering capabilities for various media formats. For example, Ikivo and BitFlash/OpenText provide engines that let you view SVG Tiny, a subprofile of the full SVG specification. SVG is a widely adopted open standard for data-driven interactive applications and device UI elements. Superscape provides an engine for 3D graphics, while Beatnik offers an engine for listening to audio files such as Scalable Polyphonic-MIDI and the proprietary .xmf format. RealPlayer and Quicktime Player can play recorded audio file formats, such as Adaptive Multi-Rate (AMR), AAC, and MP3. Additionally, video content in h.263 3GPP and MPEG-4 formats can be played back through client players such as PacketVideo pvPlayer, RealPlayer, and Apple's Quicktime Player.

Often, technology-enabling applications compete against internally developed solutions from handset, operating system, and platform vendors. For example, some handset vendors license micro browsers from browser vendors such as Openwave, while others use their own browsers.

The mobile content development landscape

Now that you have a strong working knowledge of the mobile market, it is time to consider the tools you will use to create your application or content. The good news is that mobile development does not require you to buy, learn, and use an entirely new set of tools. You can develop browser and messaging-based applications with the same Adobe Creative Suite products you are using today for your wired-web content. GoLive CS2 can also handle compound documents containing SMIL, SVG-t, and XHTML elements, as well as CSS. For client-side development, most of the major integrated development environments (IDEs), including Metrowerks' CodeWarrior and Borland's C++Builder, support the development of native C++ code that drives mobile applications, or have mobile-specific extensions. Borland's JBuilder, or Eclipse, can be used to create Java 2 Micro Edition (J2ME) content, while XMLSpy and Stylus Studio can handle XML content. Databases and middleware layers require little, if any, modification for servicing mobile users.

Once you complete your core application engine, you can use complementary mobile technologies to deliver a full-functioning solution. For example, imagine that you are the developer—not the user—of the application for a museum tour gide. You finished the back-end database and middleware programming, and now you need to finish the application by tying together the existing engine with mobile-appropriate technologies.

Local connectivity options

Multiplayer gaming, proximity-based services, file transfer, and application loading typically use local connectivity technologies for relatively short-distance connections. Local connectivity options include the following:

- **Bluetooth.** Bluetooth is a peer-to-peer connectivity technology that uses a short-range radio frequency and transmits up to 10 meters.
- **WiFi.** WiFi also uses short-range radio frequencies, but instead of a peer-to-peer paradigm, WiFi uses a one-to-many approach and typically acts as an access point to a public or private network.
- **InfraRed.** InfraRed uses line-of-sight to establish peer-to-peer connectivity.

You select Bluetooth as your peer-to-peer connectivity. Bluetooth transmitters located throughout the Louvre communicate with mobile phones, enabling other technologies to display the user's location on a map within the application.

Markup languages

As in the wired web, there are different markup languages used to define the format of content. Most are based on traditional HTML or XML, or a combination of both. Markup languages include the following:

- **HTML.** HTML is the base language of the web, and was defined by the W3C. An increasing number of mobile browsers are supporting full HTML 4.x or at least large subsets of the language, as browser vendors and the operators realize that consumers are demanding access to the majority of the existing Internet content. Frames are a notable exception in most of these cases.
- **XML.** XML is the preferred method of storing and transferring data, with each item tagged appropriately. Many markup languages are based on XML, which the W3C defined.
- **cHTML.** Compact Hypertext Markup Language is a subset of HTML. A consortium of Asian technology companies, including ACCESS, Fujitsu, Matsushita, Mitsubishi, NEC, and SONY, submitted the specification to the W3C, which accepted it. cHTML is used for i-Mode-based devices. It is an older markup language that is not widely used today.
- **XHTML.** XHTML is the XML-compliant version of HTML that the W3C defined. This language requires code to be well-formed according to XML rules and parsable. XML compliance reduces the burden on the browser, providing a smaller footprint and less memory consumption. XHTML is now a common format for both the wired web and the wireless web.

The evolution of WAP

A number of companies who wanted to create interoperability standards for mobile browsing created the WAP Forum (now part of the Open Mobile Alliance) in the late 1990s. The first specification, Wireless Application Protocol (WAP) 1.x, comprises a host of mobile-specific technologies, such as Wireless Markup Language (WML) for markup, WMLScript as a client-side scripting language, WBMP as an image format, and a WAP stack for transport. All of these standards were created more or less from scratch and had only mobile applications. WAP 1.x was the mobile open standard. However, it was also quite strict in terms of implementation options, and was not intuitive. WAP 1.x was also very limiting in presentation options; it offered no stylesheets, only one font, and limited table support.

WAP 2.x was created to offer a more compelling user experience and to give designers and users more options. In addition, WAP 2.x was focused on facilitating the migration of wired assets to wireless assets. As a result, WAP 2.x largely comprises mobile-specific versions of existing technologies, such as XHTML Mobile Profile for markup, a Transmission Control Protocol/Internet Protocol (TCP/IP) stack for transport, and support of .gif, .jpeg, and .png image formats. In addition, WAP 2.0 provides WAP CSS that can be used to optimize presentation for different devices, rather than coding from beginning to end for each device. The big drawback in WAP 2.0 is a lack of scripting language support for XHTML Mobile Profile files.

WAP 3.0 is expected to address the need for scripting through the use of XHTML-Basic and compound documents. These documents typically contain a mixture of technologies, such as XHTML with embedded SVG and XML, and often use CSS or SMIL for the presentation layer. Many industry watchers believe that WAP 3.0 should work not to create mobile-specific silo specifications, but instead to create a framework for more easily taking wired-web content mobile.

- **XHTML Mobile Profile.** XHTML Mobile Profile is the mobile subset of XHTML that the Open Mobile Alliance defined.
- **WML.** The WAP Forum (now part of Open Mobile Alliance) defined WML. This XML-based language was specifically designed for mobile devices and is still widely supported, although functionally limited.

Using the microbrowser and XHTML Mobile Profile, you can display the items available in the gift shop and purchase options.

Presentation languages

The following languages are specifically used for handling the look and feel of content:

- **CSS.** Cascading Style Sheets separate web content from visual design elements, such as fonts, colors, and layout. Stylesheets enable rapid changes across entire sites by defining visual design elements in a central file or files. The W3C defined the CSS specification.
- **WAP CSS.** WAP CSS is a subset of the standard CSS presentation language specifically for mobile applications that use XHTML Mobile Profile. Like XHTML Mobile Profile, the Open Mobile Alliance defined WAP CSS.
- **SMIL.** SMIL is an XML-based presentation language that the W3C defined. SMIL is used primarily for slideshow or time-based applications and is also the presentation language for MMS.

You design the browser-based part of the application to mirror the look and feel of the Louvre's website. CSS lets you maintain a consistent look and feel, while GoLive CS2 enables you to pull in Photoshop graphics and InDesign text from the printed E. Topliffe brochure as needed. You add the option of sending a virtual postcard, and select SMIL to create a slideshow of images of E. Topliffe's early work.

Messaging

Mobile networks and applications support several unique message formats, in addition to standard formats such as Multipurpose Internet Mail Extensions (MIME) e-mail:

- **MMS.** MMS enables you to package text, images, audio, and other content and send it to users either from an application server or peer-to-peer via MMS Gateways in the operator networks. 3GPP defined MMS.
- **SMS.** SMS lets you send brief text messages or small data files to users either from an application server or peer-to-peer via SMS Gateways in the operator networks.
- **WAP Push.** WAP Push messages are used primarily for devices that have a WAP stack (and not a TCP/IP stack) and can send information such as settings and URLs. Like the other WAP specifications, Open Mobile Alliance defined WAP Push.

The user receives all of the videos of interviews with E. Topliffe his contemporaries, and the images of his letters to his close associates, by using peer-to-peer connectivity via MMS Gateway.

Multimedia formats

Audio and video capabilities on mobile devices are rapidly improving, although support for specific formats still varies across devices. Formats include the following:

- **h.263 3GPP.** h.263 3GPP is a 3GPP-standard video format.
- **Adaptive Multi-Rate.** AMR is a standard audio format that 3GPP defined. There are Narrow Band and Wide Band versions of this format.
- **Enhanced Variable Rate Coder (EVRC).** EVRC is a standard audio format that is part of the larger 3GPP2 specification and is widely used in CDMA networks.
- **MPEG-4.** MPEG-4 is a commonly supported audio and video format that the Moving Picture Experts Group (www.chiariglione.org/mpeg) standardized.

PDF support on mobile devices

In August of 2002, the popular Adobe Acrobat® Reader® was released for devices running the Symbian operating system. This extension of Adobe PDF capabilities to the mobile world has enabled users of Symbian OS™ phones to take PDF documents wherever they go. Acrobat Reader for Symbian OS enables users to read, navigate, and search Adobe PDF documents (including those that have been password protected), either in their original format or reflowed to fit the width of a wireless device screen. Since the initial availability of Adobe Acrobat Reader for Symbian OS, a number of handset vendors have begun shipping some of their handsets with out-of-the-box Adobe PDF support.

- **Scalable Polyphonic MIDI (SP-MIDI).** SP-MIDI is an audio format that enables MIDI channels to be prioritized for playback on devices that may have a limited number of simultaneous instruments. The Midi Manufacturers Association (www.midi.org) defined SP-MIDI.

- **SVG-t.** SVG is a widely adopted open standard for data-driven interactive applications and device UI elements, and SVG-t is a subprofile of the full SVG specification.

  SVG-t drives the location-based map that shows the layout of the museum and the location of the user. The device plays rare interview clips with Topliffe in the AMR audio format.

Compound documents

Compound documents are the future of mobile content. Compound documents enable you to create rich client solutions. Compound documents often contain a mixture of technologies, such as XHTML with embedded SVG and XML, and often use CSS or SMIL for the presentation layer. The key benefit of compound documents is that users can view them in a microbrowser without installing any other software.

You decide to use compound documents to let users click any part of an SVG image of a work of art to see closer detail, with XHTML text noting medium, date, and title of work.

MIDP J2ME

Mobile Information Device Profile (MIDP) is the mobile version of client-side Java. This language is a subset of the Java 2 Standard Edition specification with significant mobile-specific additions. A Kilobyte Virtual Machine (KVM) is required to run these applications on the client. J2ME rapidly evolves to meet industry demands for more access to device functionality.

Java Specification Requests (JSRs) typically define new APIs and other additions to the MIDP J2ME specifications. These APIs enable MIDP Java applications (MIDlets) to extend beyond the KVM *sandbox* and utilize phone features and functions. JSR-226, for example, enables MIDlets to render SVG-t content, while JSR-184 enables the rendering of 3D graphics.

You create a MIDlet game to complement the exhibit tour guide. The game uses JSR-184 and is a 3-D puzzle game based on the wood layering of Topliffe's work.

Security and privacy

One of the significant inhibitors of location-based services and wide distribution of mobile content is the inherent issues in individual privacy and ownership rights. Content owners and creators want to protect their products from devaluation through easy redistribution and piracy, while individuals want to safeguard their personal information and ensure that their mobile transactions are secure. There are multiple industry initiatives, including the following, to address this issue:

- **Open Mobile Alliance Digital Rights Management.** OMA Digital Rights Management (OMA DRM) is the industry standard for mobile content protection. OMA DRM is a device-specific open standard, and is used to protect content and applications from piracy. There are several different options for protecting content in version 1.0, such as Forward Lock and Combined and Separate Delivery, which are widely supported. Version 2.0 provides a more robust security model, including third-party authentication, and will be coming to market in the near term. Market watcher Baskerville expects more than 100 million mobile phones supporting OMA DRM to ship during 2005.

- **The Liberty Alliance.** The Liberty Alliance is a standards body focused on the technical, business, and policy issues surrounding identity and web services. It creates open technology specifications and provides Liberty Interoperable Certifications that enable individuals to authenticate their own identities as well as the identity of any party they may interact with via a mobile device.

  The Louvre insists that you use OMA DRM to protect the video clips sent to devices, in order to prevent users from sharing the clips with others and to ensure the seven-day expiration.

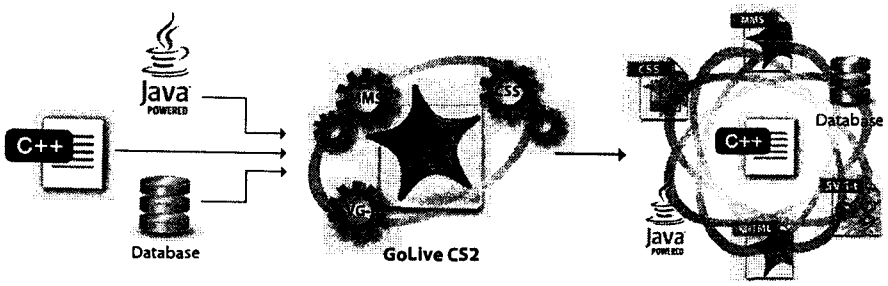
Financial benefits of GoLive

GoLive clearly addresses many of the challenges of mobile development, including an ever-tightening IT budget. By selecting GoLive, you can use one tool to create web and mobile solutions, instead of buying and learning an entirely new toolset just to go mobile. The ability to leverage existing content for your mobile solution saves both time and money, while the ability to reuse design elements leads to shorter project times and a cross-media user experience. GoLive helps you get the benefits of mobile technology with a much smaller investment of work and time. Additionally, the Adobe Creative Suite Premium bundle provides even more value, combining essential tools such as Photoshop, Illustrator, and Acrobat with GoLive at a competitive price.

Location-based services

Location-based services enable applications to use the user's present location to enhance the applications' offerings. Global Positioning System (GPS) and cell-ID are two methods for providing this information.

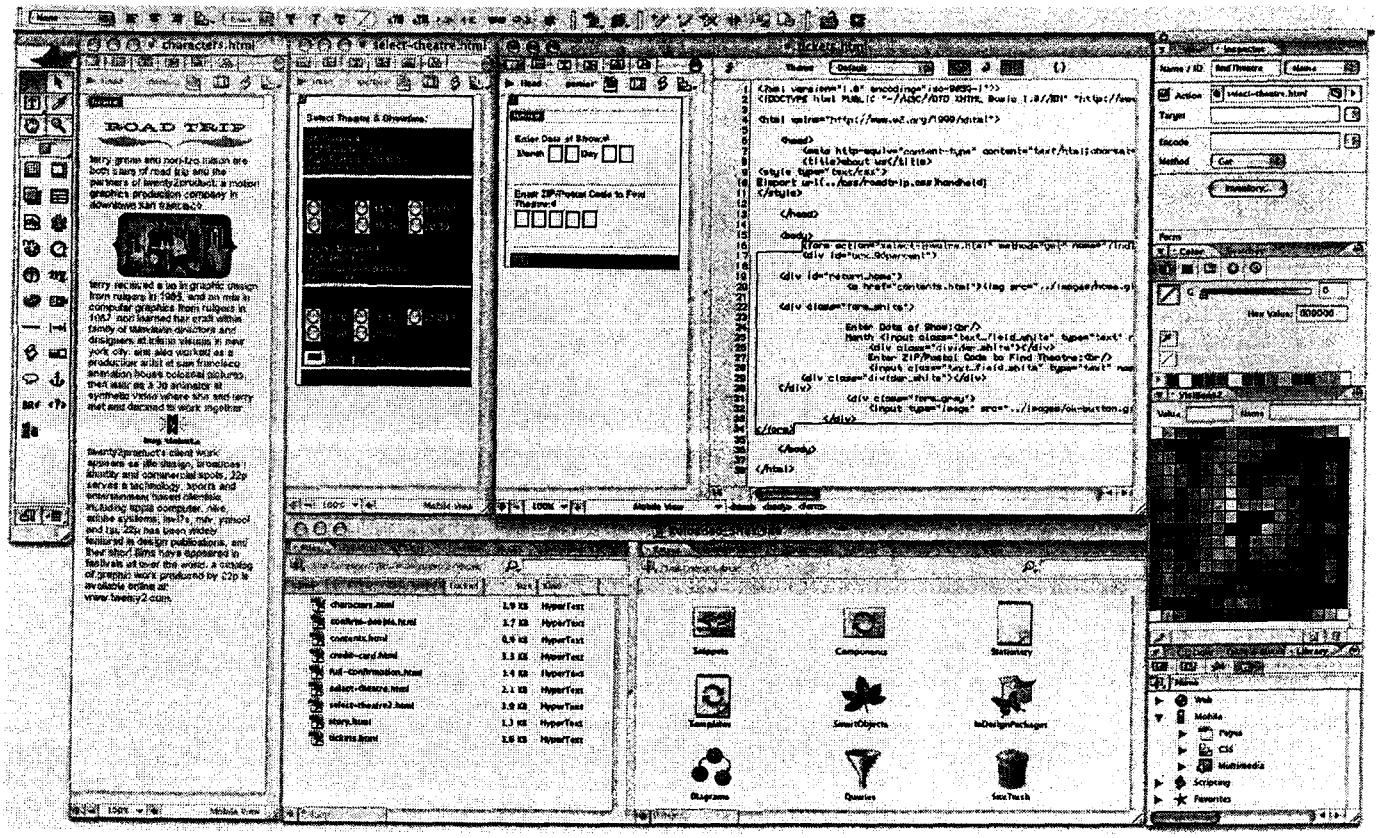
Once the user opens the browser to find a nearby restaurant, GPS shows restaurant locations on a local map, as well as providing walking directions to various local destinations.



Application engines using C++, Java, or back-end database technologies can be pulled into GoLive. Once you start GoLive, you can take advantage of all of the markup, presentation, messaging, and other tools. From within GoLive, you can also select the same elements from print or web content and bring them into a mobile framework.

Benefits of using Adobe GoLive CS2 for mobile development

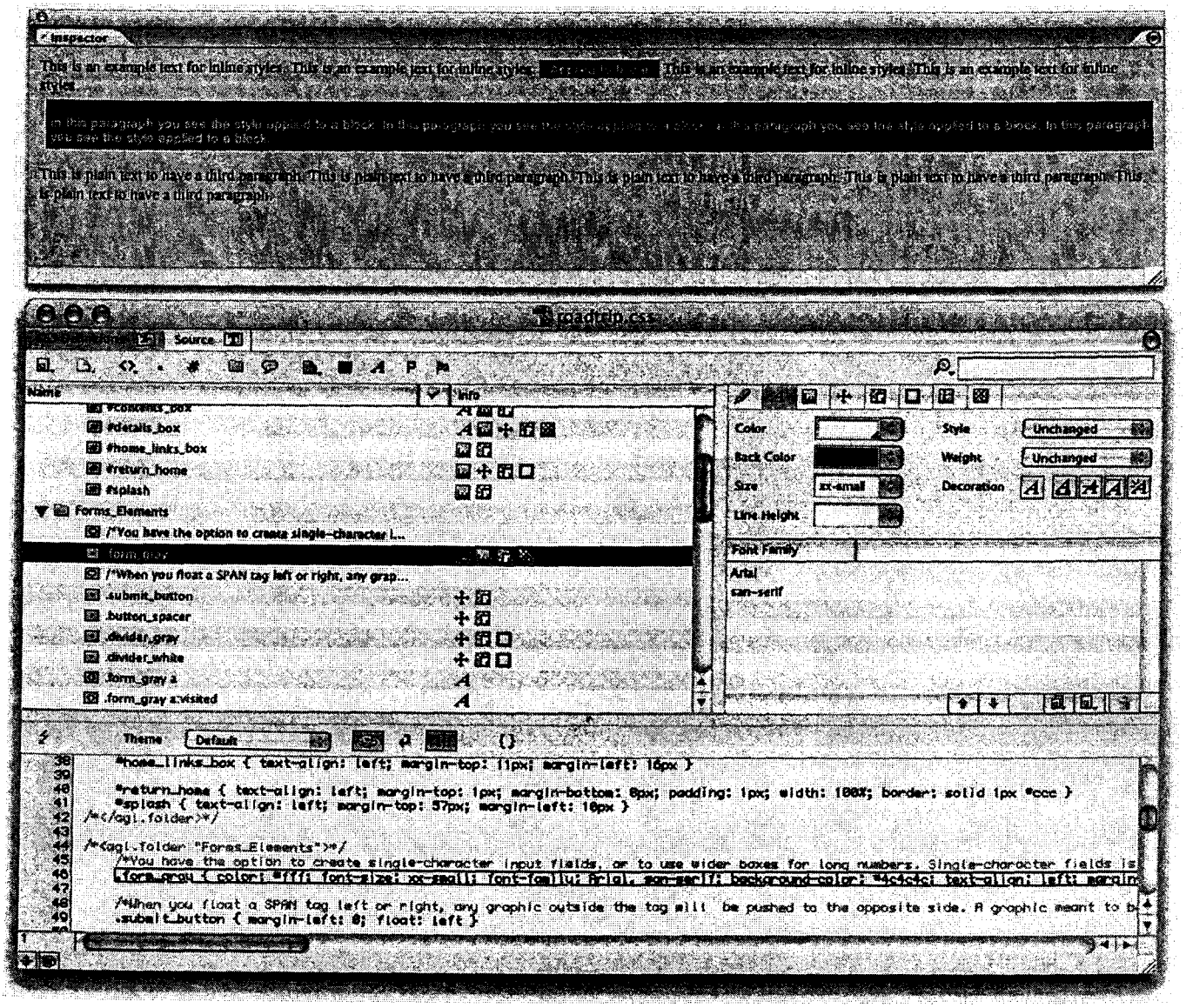
Think of IDEs as the machinist's development shop. Whether you are building a microcar engine or an airplane engine, you still need the space, tools, machines, materials, and fasteners to put together a working engine. Once your engine is finished, you need to add all of the other elements that turn it into a car or airplane. You can do some of these things in the machinist's shop; however, that shop is more for creating engines than chassis or wings. In addition, you probably won't have the right tools or materials on hand in the machinist's shop.



Using the Objects palette, you can easily drag-and-drop elements into an XHTML Basic file or an XHTML Mobile Profile file to create a mobile-ready form. This example shows an XHTML Basic page, called Tickets.html, being created to help users easily find, select, and purchase movie tickets through a mobile phone.

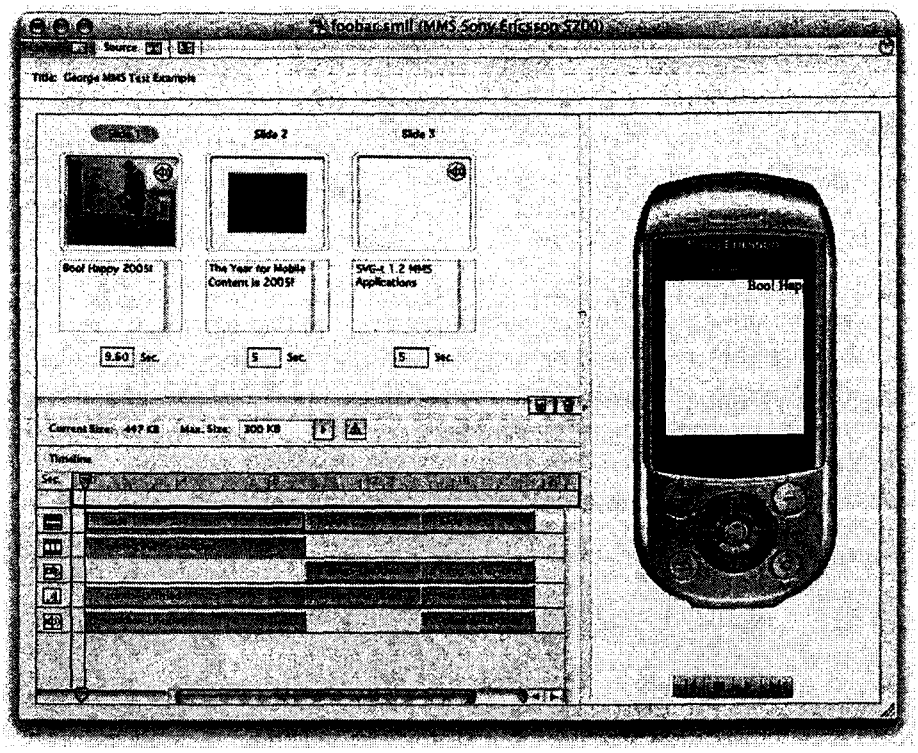
Completing an application is much the same. Once you complete the core application engine, you still must layer on all of the supporting technologies to enable the application to interact with the device hardware and software, and to let users interact with your application. Development IDEs are optimized for the detailed development work, but they don't have all the content editors and presentation utilities necessary. GoLive CS2 is the ideal solution for completing mobile applications.

In the above metaphor, GoLive CS2 is the high-end body shop next door to the machinist's shop. In this body shop, you can select a chassis, a body shape, wings or wheels, or a steering wheel or rudder. You have all the hammers, sanders, and high-pressure paint guns you need to turn your engine into a functioning mode of transportation. You can assemble your car, install comfortable seats, add heat or cooling, and polish and paint the outside. Without the GoLive CS2 body shop, you'd be moving your engine from the machinist's shop to the metal shop, to the window manufacturer, to the upholsterers, and to the paint shop.



The CSS Editor lets you visually define styles and positioning of content elements. This example uses a CSS class called ".form_gray" to lay out the Tickets.html page in CSS.

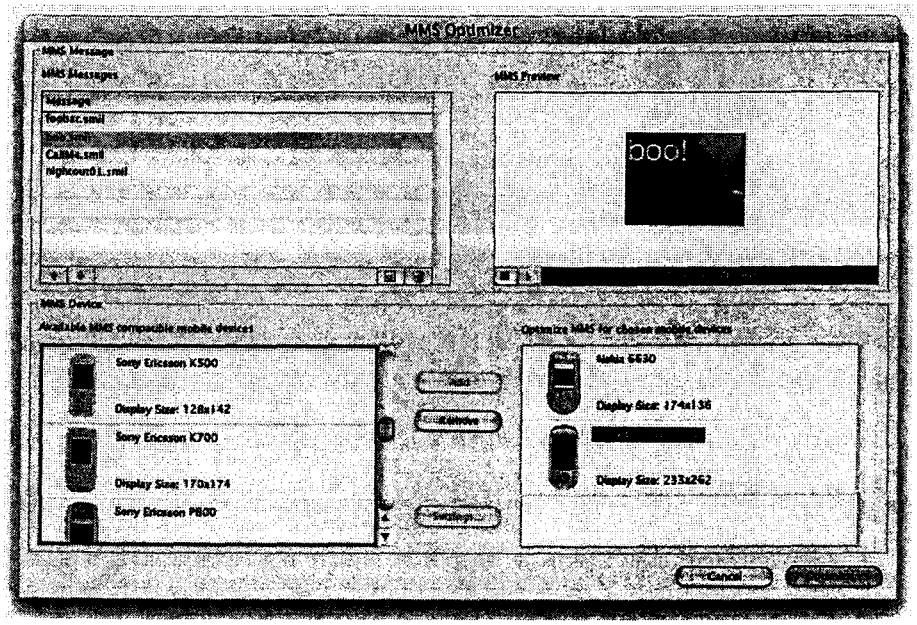
GoLive CS2 gives you one place to build your web interface and finish your application. It supports all the major functionality that a mobile application may need, freeing you to focus on what you want your application to do, not how to do it.



Using the MMS Editor, you can visually create SMIL files by setting slide elements and timers, as well as previewing content on device simulators.

Planning a night out while mobile

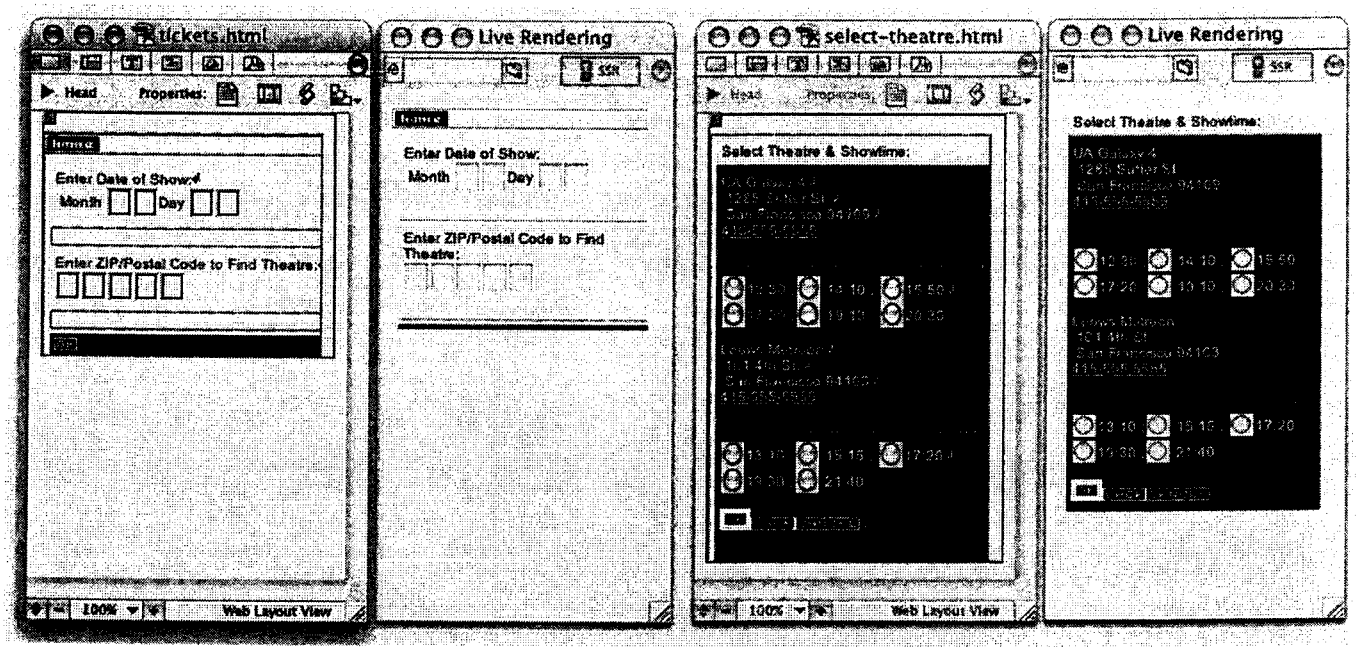
In our second practical example, GoLive CS2 enables the creation of a mobile movie ticketing application. This application features a mobile browser web interface for viewing information about current film choices, available showtimes, and locations. Users can also purchase tickets by using their mobile devices. The application is created through GoLive CS2 features, including drag-and-drop XHTML Mobile Profile elements and the visual CSS Editor.



The MMS Optimizer gives users the opportunity to preview MMS content on multiple device simulators and optimize the presentation for each device.

Author presentation languages visually

GoLive CS2 extends visual authoring to include support for CSS level 1, CSS level 2 and WAP CSS. As with authoring of markup languages, GoLive CS2 provides an integrated layout and source view, as well as code validation and code completion. To ease the challenge of going mobile, GoLive CS2 enables you to convert web-based projects into mobile baseline sites, converting XHTML to XHTML Mobile Profile, or HTML to XHTML.



Throughout the content design and development process, you can quickly preview your content in a standard browser and in Small Screen Rendering view, all within the GoLive environment. In this example, you can see how the theatre location page renders on a web browser and on a mobile phone browser through the Opera thin-client engine.

Use native support for messaging development

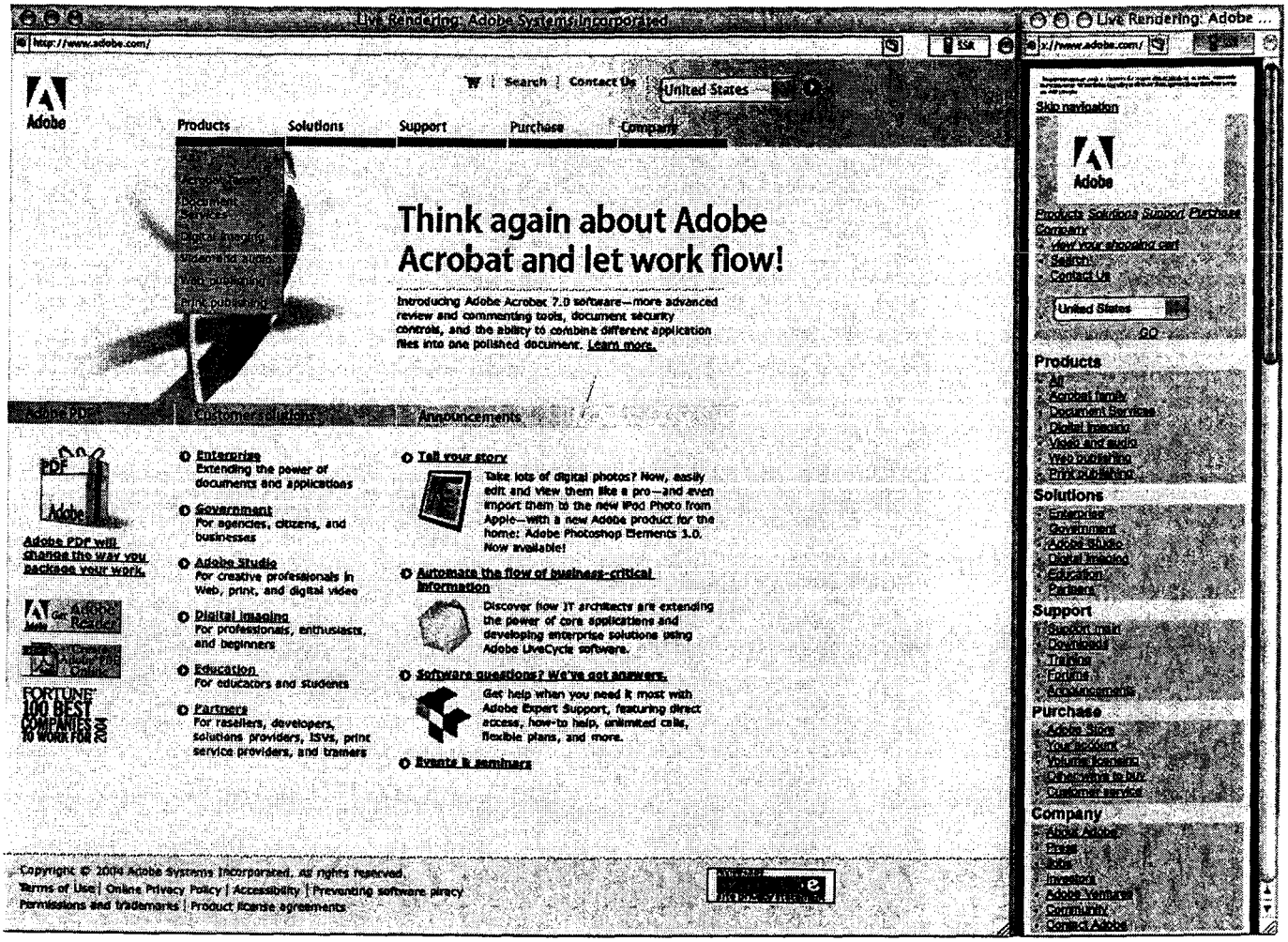
GoLive CS2 enables you to create interactive SMIL and MMS messaging applications by using an object-based timeline interface. Visual authoring and layout mode supports SMIL 1.0, SMIL 2.0, and MMS. As with presentation language and markup language authoring, GoLive CS2 supports syntax checking, debugging, and validation for SMIL 1.0, SMIL 2.0, and the SMIL 2.0 3GPP profile. You can also convert SMIL messages to the MMS format. By using SMIL, you can pull together graphics files of multiple formats.

One popular use of MMS is to create multimedia postcards to promote events and entertainment events, or as a method for pushing information on a subscription basis. Using GoLive CS2, you can apply finite controls, such as timing and duration, and work with images, text, sound, and mobile video (SVG and 3GPP) to create a stunning MMS presentation. GoLive CS2 facilitates the creation of galleries of images, sounds, and templates that you use repetitively.

GoLive CS2 also lets users ensure optimal presentation of MMS messages on different devices by using the MMS Optimizer feature. This feature is essential for perfecting MMS content, given the discrepancies in screen sizes, image support, and SMIL support on different devices.

Optimize for specific devices

Once you've developed content, you must test how it appears on various devices. GoLive CS2 lets you select the devices for which you are authoring and then batch process MMS content to optimize it for each device in the queue. Additionally, GoLive CS2 provides onboard phone skins and device profiles from SonyEricsson, Nokia, and ACCESS to be used for device emulation.



This example of the Small Screen Rendering feature provides a side-by-side view of the traditional web page presentation (on the left) and how the page would render on a mobile device (on the right). As bandwidth increases, users will expect all websites to render appropriately on mobile devices.

Looking forward

Just as you cannot safely drive a car by looking only in the rearview mirror, you cannot successfully develop an application or content solution without looking at what the future may hold. To avoid rearchitecting an entire solution to meet the latest market demands, it is helpful to have a sense of how the market may change in the future so that you can take those possibilities into account today. In addition, it is important to select tools that will grow with you and enable you to take advantage of new technologies as they come to market. New specifications and features are being defined constantly, network operators continue to push for new functionality to separate their offerings from competitors, and the competition for processor speed and memory has affected mobile devices in the same way that it has affected personal computers.

You should watch and begin creating implementation scenarios for the following trends.

Improved multimedia data capture

Camera phones are immensely popular with all types of users, so vendors are constantly increasing camera resolution, features, and media storage and management capabilities. Video capture is also already available on some models, and that quality is also escalating exponentially. Improved audio capture will also accompany the visual enhancements. Devices are likewise improving their multimedia playback and supported content types, and live video conferencing is already on the market in its early stages.

Richer content presentation

While most early mobile efforts centered on creating completely separate mobile content offerings, consumers and enterprises are demanding access to the full Internet. Many browsers can now render the majority of websites, so the web designers who create CSS-based sites that account for mobile browsers will greatly benefit in this regard. The Small Screen Rendering capabilities of GoLive CS2 give you the ability to easily see how your traditional website will render in a full-featured microbrowser, making the migration to mobile technologies one step closer.

Increased security

As corporate usage increases, enterprises are demanding that mobile devices are at least as secure as their laptops. VPN solutions, fingerprint- and iris-based application unlocking, and other frameworks are evolving to meet this demand.

Widening of the pipe

3G networks, EDGE networks, and the networks that will follow them are creating additional bandwidth for data transfer which is creating greater demand for high-quality content that is optimized for smaller presentation on device displays.

Device-based content creation

Early adopters are already using mobile blogging, or *moblogging*. As more users have cameras and camcorders embedded in their mobile devices, users will want to share their content through various publishing models.

Location-based services

Location-based services are still in their infancy, in part because of resistance by users with privacy concerns who don't want their whereabouts to be freely broadcast. Vendors and service providers are addressing these concerns by making location-based applications something a user must activate, rather than a passive default setting. As user activation and other safeguards begin to address key privacy concerns, and as users become more comfortable with the benefits of location- and presence-based services, demand for these kinds of applications and services are expected to grow.

Remote device management

Enterprises that deploy mobile applications to their workforces are demanding the ability to manage and provision the applications that reside on their employees' devices. Look for IT staff to update software to users off site and monitor what applications they have installed on company-owned devices.

Mobile television

Several efforts are already underway, and in Asia this feature is extremely popular. As users gain the ability to watch broadcast-quality television, successful applications will leverage this new viewing behavior for adding value and generating revenue opportunities.

Go mobile with Adobe GoLive CS2

The opportunity for mobile content and applications is growing rapidly. With its focus on open standards, extensibility, and the tight integration with the rest of the award-winning Adobe product line, GoLive CS2 is the smart choice for going mobile. The GoLive dedication to open standards ensures that you can grow and evolve your content and applications as the market develops. The GoLive SDK enables you to take advantage of the latest technologies without waiting for the next release, ensuring that you will be on the forefront of the mobile revolution. The tight integration of GoLive CS2 with the rest of the Adobe product line makes the transition to mobile from print or wired-web content smoother and simpler. No other product has the versatility, commitment to open standards, and tight integration with market-leading tools, and these traits make GoLive CS2 the clear choice for mobile development.

Resources and references for mobile developers

Hardware vendors

- **Motocoder** (motocoder.com). Tools, SDKs, and documents for Motorola devices and related technologies, including browsing, messaging, and MIDP J2ME applications. Free registration required for access to some resources. Paid support also available.

- **Forum Nokia** (forum.nokia.com). Tools, SDKs, and documents for all Nokia devices and related technologies, including browsing, messaging, MIDP J2ME, and native Symbian C++ applications. Free registration required for access to some resources. Discussion boards and paid support also available.

- **Sendo** (sendo.com/dev/index.asp). Tools, SDKs, and documents for Sendo X and other devices and related technologies, including MIDP J2ME and native Symbian C++ applications. Free registration required for access to resources.

- **Siemens Mobile** (www.siemens-mobile.com/developer). Tools, SDKs, and documents for Siemens Mobile devices and related technologies, including browsing, messaging, MIDP J2ME, and native Symbian C++ applications. Free registration required for access to all resources. Discussion boards also available.

- **SonyEricsson** (developer.sonyericsson.com). Tools, SDKs, and documents for SonyEricsson devices and related technologies, including browsing, messaging, MIDP J2ME, and native Symbian C++ applications. Free registration required for access to some resources. Discussion boards and paid support also available.

Platform and technology vendors

- **Access** (www.access-co.jp/products/nf.html). SDK and documentation for the NetFront mobile browser.

- **Beatware** (www.beatware.com). Tools and documentation for creating SVG Tiny thin-client content.

- **Blackberry** (www.blackberry.com/developers/index.shtml). Tools, SDKs, and documents for devices running the Blackberry software and related technologies, including browsing, MIDP J2ME, and native C++ applications. Discussion boards also available.

- **Ikivo** (www.ikivo.com), formerly ZoomOn. Authoring tools and documentation for devices enabled with SVG Tiny thin-client capabilities.

- **Microsoft** (msdn.microsoft.com/mobility). Tools, SDKs, and documents for devices running Windows Mobile, Pocket PC, and Windows CE software. Forums and paid technical support also available.

- **Openwave** (developer.openwave.com). Tools, SDKs, and documents for devices running Openwave software for browsing and messaging. Free registration required for access to some resources. Discussion boards and e-mail support also available.

- **Opera** (www.opera.com/products/mobile/dev). Information about how to improve an HTML site, create a CSS-based site with multiple views, and create a mobile portal.

- **PalmSource** (www.palmsource.com/developers). Tools, SDKs, and documents for devices running the Palm OS® software and related technologies, including browsing, MIDP J2ME, and native C++ applications. Free registration required for access to some resources. Discussion boards and paid technical support also available.

- **Qualcomm** (brew.qualcomm.com/brew/en/developer/resources/dev_resources.html). Tools, SDKs, and documents for devices running the BREW software. Discussion boards and e-mail support for qualified developers also available.

- **Series 60** (series60.com/developers). Tools, SDKs, and documents for Series 60-based devices and related technologies, including browsing, messaging, and MIDP J2ME applications.

- **Sun Microsystems** (developer.sun.com/techtopics/mobility). Tools, SDKs, and documents for devices running MIDP J2ME software. Discussion boards also available.

- **Symbian** (www.symbian.com/developer). Tools, SDKs, and documents for Symbian-based devices and related technologies, including MIDP J2ME and native Symbian C++ applications. Free registration required for access to resources.
- **UIQ** (www.uiq.com/developer). Tools and documents for creating applications and services for mobile phones that incorporate the UIQ platform.

Enterprise software vendors

- **IBM** (www.ibm.com/developerworks/wireless). Articles, tutorials, and forums on mobile development through IBM client and server technology.
- **Oracle** (www.oracle.com/technology/tech/wireless). Documents, tutorials, downloads, and forums on mobile development through Oracle technology.

Independent developer sites

- **All About Symbian** (www.allaboutsymbian.com/develop). Articles and tutorials on Symbian application development, mainly Open Programming Language (OPL)-focused.
- **Developer.com** (www.developer.com/ws). Articles and tutorials on mobile development, including BREW, Java, and browsing.
- **DevX** (www.devx.com/wireless/Door/7049). Articles, tutorials, and forums on mobile development. Also features vendor-sponsored channels.
- **JavaWorld** (www.javaworld.com/channel_content/jw-micro-index.shtml). Articles, tutorials, and forums on mobile Java development.
- **MicroDevNet** (www.microjava.com/developer). Articles and other resources for mobile Java development.
- **NewLC** (www.newlc.com). Articles, tutorials, reviews, and forums on Symbian application development.
- **O'Reilly Wireless DevCenter** (www.oreillynet.com/wireless). Articles on mobile development.
- **W3 Schools** (www.w3schools.com). Tutorials on mobile development technologies, including browsing, SVG, and .NET for mobile.
- **XML.com** (www.xml.com/mobile). Articles and tutorials on using XML in mobile applications.

Network operators

- **Orange** (developers.orange.com). Downloads, documentation, and forums for Java, Symbian, Palm, and Windows Mobile developers. API documentation and technical support available to premium members.
- **T-Mobile** (developer.t-mobile.com). Tools, documents, and support for members concerning browsing, messaging, Java, and Pocket PC technologies.
- **Vodafone** (via.vodafone.com). Support and documentation, mostly limited to partners.

Standardization groups

- **3GPP** (www.3gpp.org). Information on technologies including multimedia formats, MMS, and radio networks.
- **Liberty Alliance Project** (www.projectliberty.org). Information on digital identity and related matters.
- **OMA** (www.openmobilealliance.org). Information on mobile standardization, including protocol stacks, markup languages, SyncML, DRM, location, and presence.
- **World Wide Web Consortium (W3C)** (www.w3c.org). Information on browsing, SVG, SMIL, and other mobile-related technologies.

FOR MORE INFORMATION
For a comprehensive overview of Adobe GoLive CS2, please visit adobe.com/products/golive

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Adobe

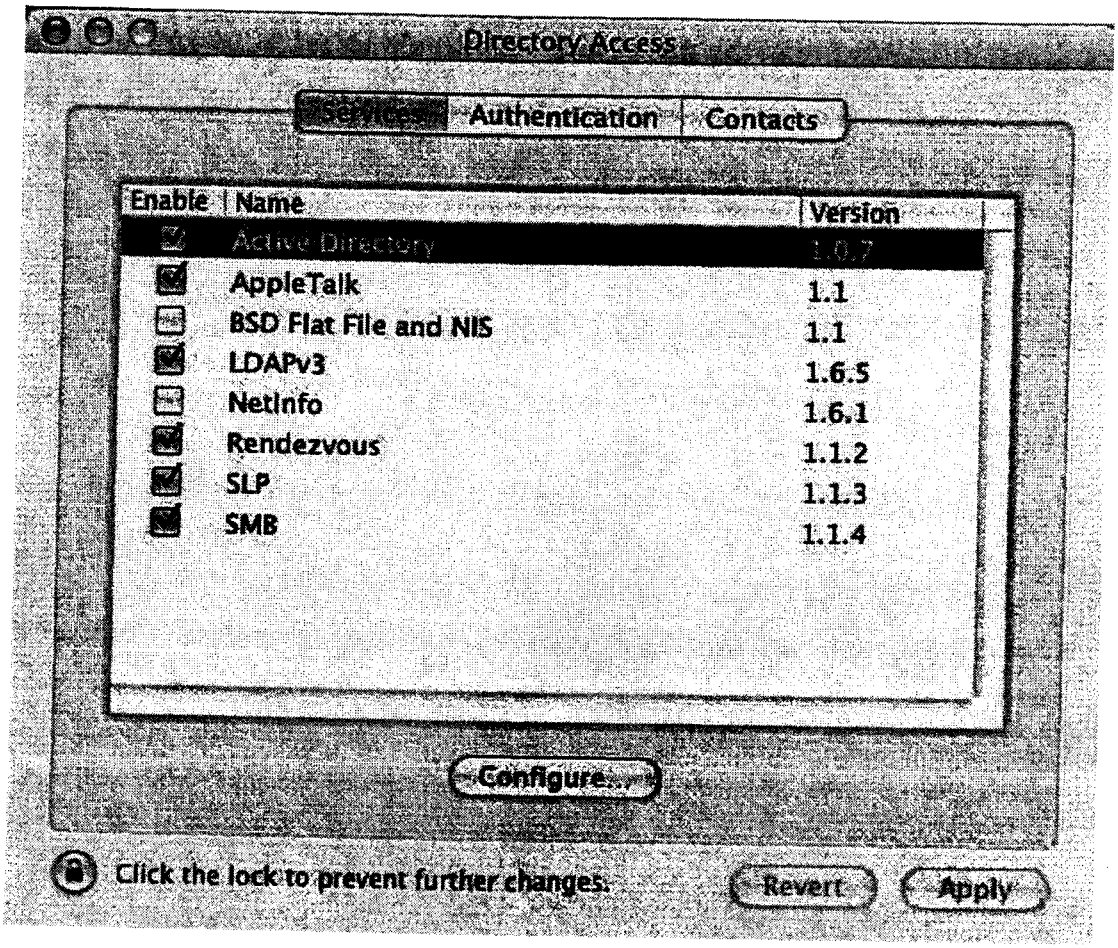
Configuration of OS X (10.3x) to Active Directory

Note: Before starting, ensure:

- That you have configured your client to use a network time server through "System Preferences" » "Date and Time" » "Set Date & Time automatically"

Graphic User Interface configuration

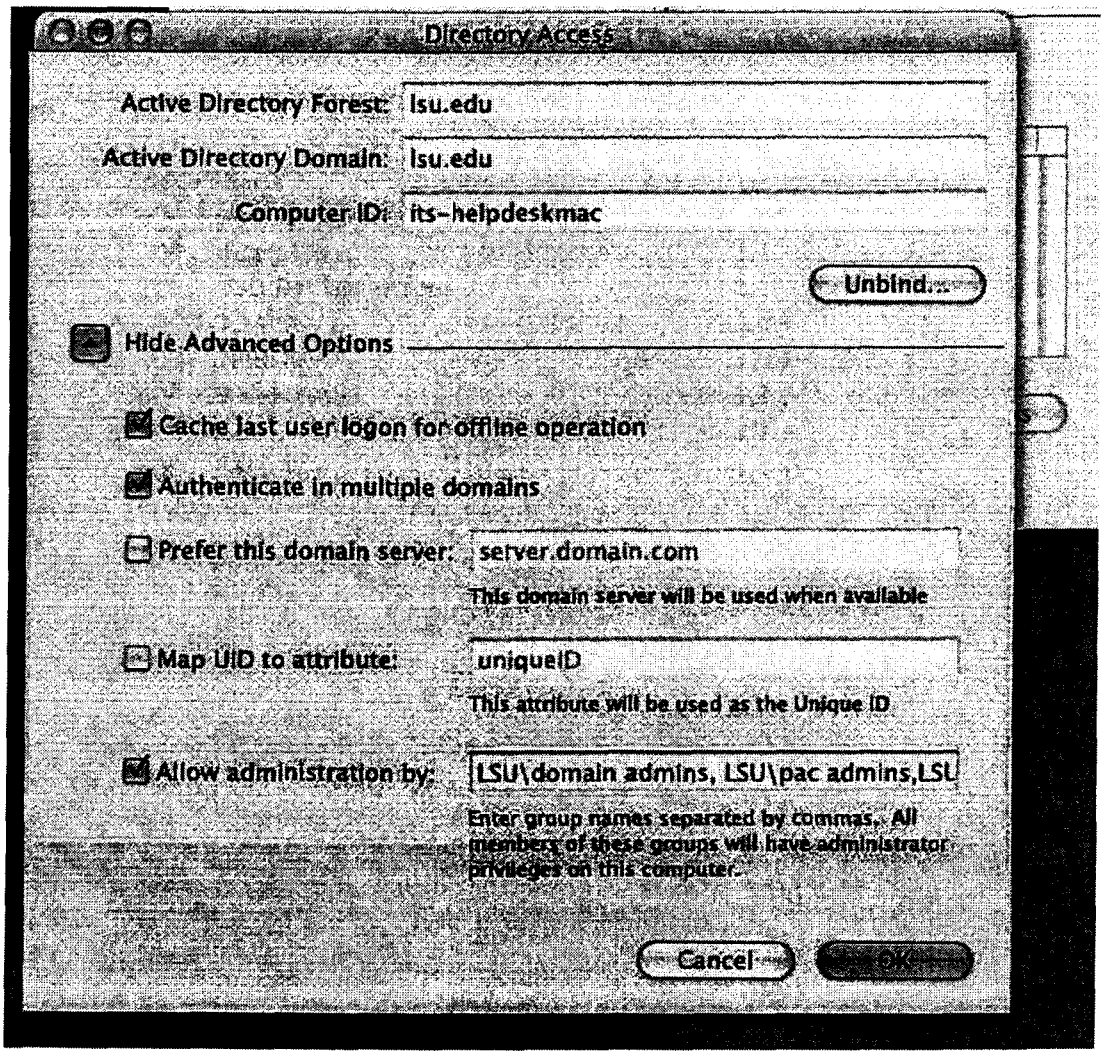
Active Directory authentication is configured using the Directory Access program in the Applications / Utilities folder.



Highlight the "Active Directory" line and click "Configure".

Click "Show Advanced Options" to display a sheet similar to the following, though missing the configuration details which you will need to enter. Be sure to set the following options

- Active Directory Forest – lsu.edu
- Active Directory Domain – lsu.edu
- Computer ID - *your computer name*
- Select "Authenticate in multiple domains"
- Select "Allow administration by" and enter whatever groups needed.

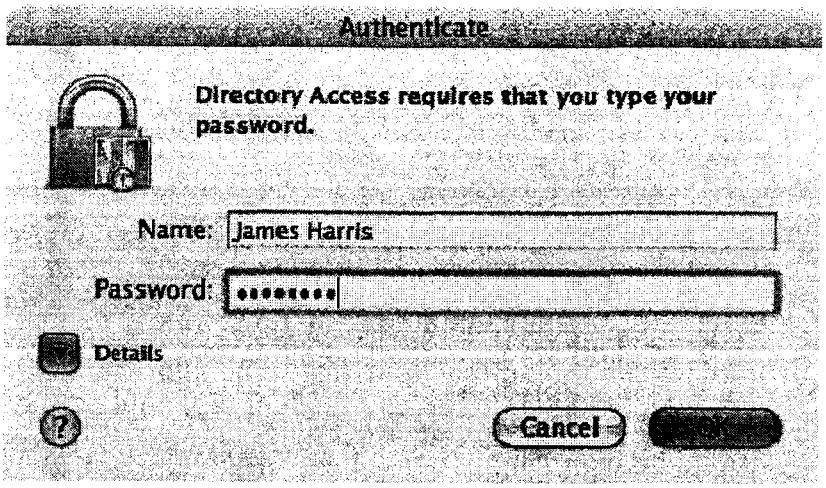


Once you have entered these details, click "Bind" to join the Active Directory.

You will need to enter:

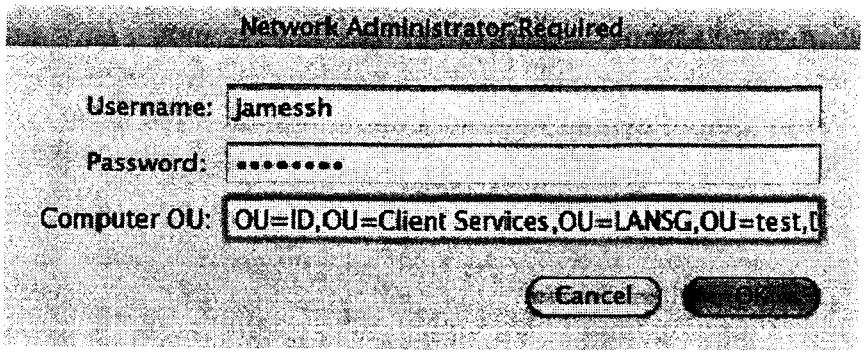
- a OS X.3 username and password account with administrator rights
- an Active Directory username and password with privileges to join computers to the Active Directory

- the location of the computer within the Active Directory

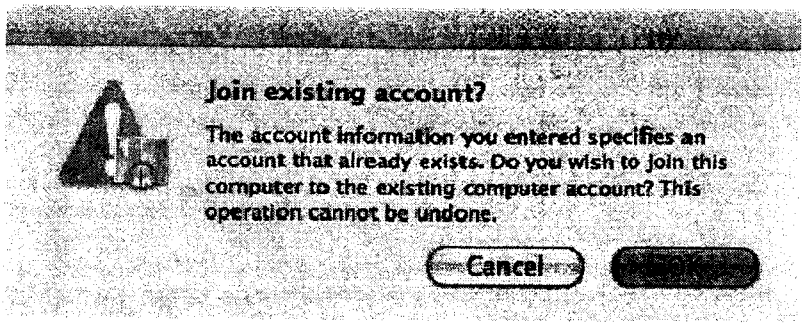


The default Active Directory location of `OU=Computers,DC=lsu,DC=edu` will not work and you will need to specify a different location. An example location is as follows:

```
OU=Departments and Organizations,OU=GRAP,OU=Computers,DC=lsu,DC=edu
```

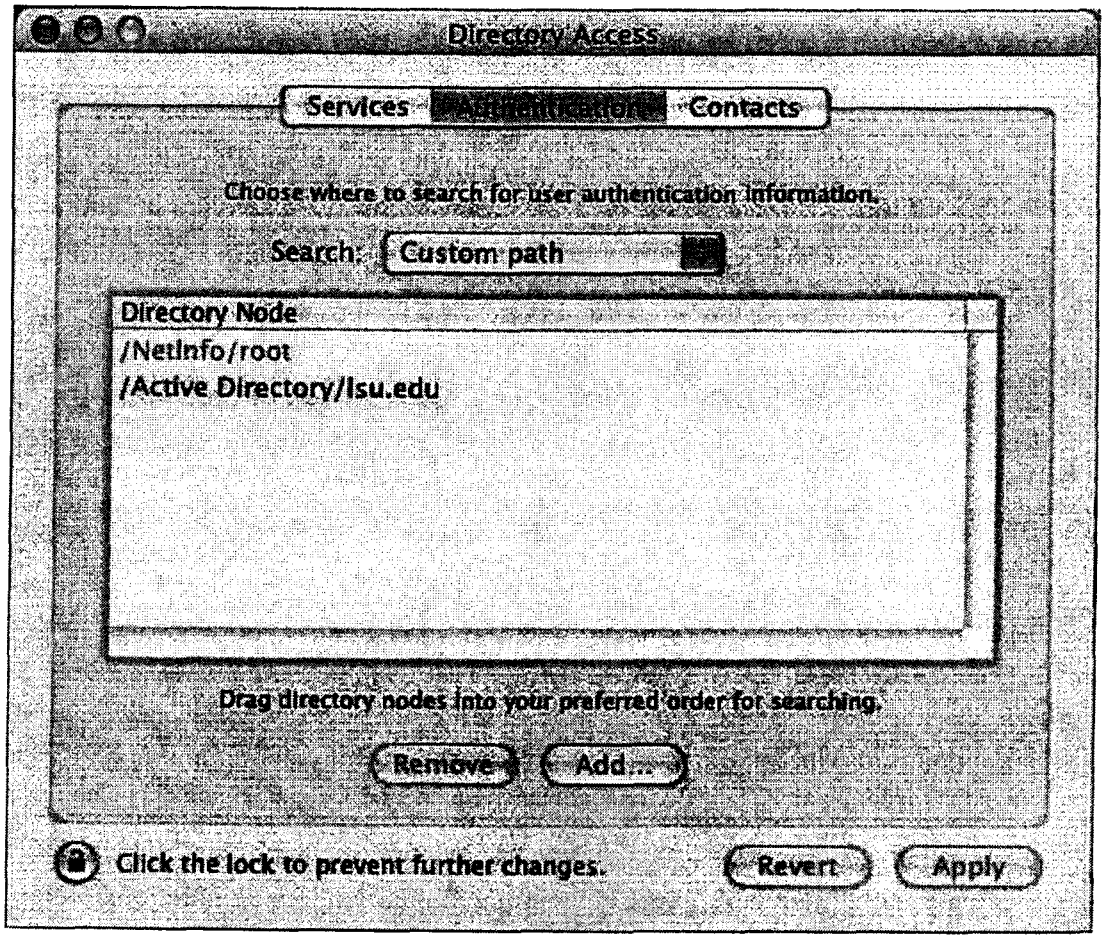


If you get an error that you have insufficient privileges to join the Active Directory, it may be related to the group permissions issue discussed below. Otherwise you should see the following.



Click "OK" and your computer has joined the Active Directory. You can leave the Active Directory by clicking "Unbind".

The final step is to add the Active Directory to OS X.3's authentication method list. This is done by selecting the "Authentication" tab and adding a "Custom path".



Users will now be able to logon using their Active Directory credentials and connect to file servers without having to enter their username and password a second time. Note that the OS X.3 graphical configuration does not support the use of network home directories - users will be given a local home directory.

You should be sure to disable automatic login and enable automatic logout on computers on which Active Directory based authentication is used. This can be accomplished under System Preferences > Security.

Exhibit C

CAMPUS DELIVERY SITES OTHER THAN 1ST FLOOR DELIVERY

See two pages following this one

	Building	Obstacle	# of Machines	Level
1	Atkinson	No Elevator. Handicap lift to 1st floor- need key	1- Departmental in Bmt	2
			1-Departmental on 1st	3
			1-Convenience on 2nd	1
2	Band	Construction in area	1-Deparmental on 1st	3
3	Bernie Moore Track	Concrete bleachers	1-Departmental in p-box	2
4	Civil War Center	Steps up to building, no ramp	1-Departmental on 1st	1
5	David Boyd	No Elevator	3-Departmental on 1st	2 2 2
			2-Departmental on 2nd	1 1
6	Energy Building-old	No Elevator	1-Departmental on 1st	1
			1-Departmental on 2nd	1
7	Facility Services	No Elevator. Ramp to 1st floor	5-Departmental on 1st	1 1 2 4 1
			2-Departmental on 2nd	3 2
8	Food Science	Steps up to building, no ramp	1-Convenience on 1st	1
9	Forestry – old	No Elevator	2-Departmental on 1st	1 4
			1-Deparmental on 2nd	3
10	Francioni	No Elevator	1-Departmental on 1st	3
			1-Departmental on 2nd	1
11	Grace King	No Elevator	1-Departmental on 1st	4
			1-Departmental on 2nd	5
			1-Departmental on 3rd	4
12	Helen Carter House	Steps up to building, no ramp	1-Departmental on 1st	1
13	Himes	No Elevator	1-Departmental in Bmt	1
			2-Departmental on 1st	4 2
			1-Convenience on 2nd	1
			3-Departmental on 2nd	2 4 1
14	Lakeshore House	No Elevator	1-Departmental on 1st	3
			1-Departmental on 3rd	1
15	Military Science	Steps up to building, no ramp. Must remove center rail of double door frame	2-Departmental on 1st	2 3
16	Pleasant	Steps w/in building to reach certain rooms	8-Departmental on 1st	4 1 1 2 2 4 3 1
			3-Departmental on 2nd	450 351 351

			4-Departmental on 3rd	3510 470 450 351
17	Prescott	No Elevator	2-Departmental on 2nd	351 200
18	African-Am Cultural Ctr	Steps w/in building to room	1-Departmental on 1st	200
19	Sea Grant	No Elevator	1-Departmental on 1st	200
			1-Departmental on 2nd	550
20	Stubbs	No Elevator. Ramp to 1st floor	1-Departmental on 1st	550
			2-Departmental on 2nd	200 550
21	Thomas Boyd	Stairs to rooms 235 & 240	7-Departmental on 1st	2010 450 200 550 351 550 351
			7-Departmental on 2nd	450 550 550 200 450 470 200
			6-Departmental on 3rd	200 550 351 351 550 450
			1-Departmental on 4th	200
22	University Press	No Elevator	1-Departmental on 1st	351
			2-Departmental on 2nd	450 750
23	Women's Softball Field	Open metal bleachers	1-Deparmental in p-box	EP2080

Other

1	CAMD	Restricted Access, No elevator	2-Departmental	351 200
2	Electrical Engineering	Key for Elevator	3-Departmental	200 200 550
3	Hill Memorial Library	Key for Elevator	2-departmental in Bmt	200 351
			1-Departmental on 2nd	200
4	Lab School	Key for Elevator		750 750 550